|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. The first people to attempt to explain why chemical changes occur were   |  |  |  | | --- | --- | --- | |  | a. | alchemists | |  | b. | metallurgists | |  | c. | physicians | |  | d. | physicists | |  | e. | the Greeks |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.1 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | False | | *KEYWORDS:* | Chemistry | early atomic theory | general chemistry | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 2. The Greeks proposed that matter consisted of four fundamental substances:   |  |  |  | | --- | --- | --- | |  | a. | fire, earth, water, air | |  | b. | fire, metal, water, air | |  | c. | earth, metal, water, air | |  | d. | atoms, fire, water, air | |  | e. | atoms, metal, fire, air |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.1 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | False | | *KEYWORDS:* | Chemistry | early atomic theory | general chemistry | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3. The first chemist to perform truly quantitative experiments was   |  |  |  | | --- | --- | --- | |  | a. | Paracelsus | |  | b. | Boyle | |  | c. | Priestly | |  | d. | Bauer | |  | e. | Lavoisier |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.1 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | False | | *KEYWORDS:* | Chemistry | early atomic theory | general chemistry | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4. The scientist who discovered the law of conservation of mass and is also called the father of modern chemistry is   |  |  |  | | --- | --- | --- | |  | a. | Proust | |  | b. | Boyle | |  | c. | Priestly | |  | d. | Bauer | |  | e. | Lavoisier |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.2 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | False | | *KEYWORDS:* | Chemistry | general chemistry | general concepts | Law of Conservation of Mass | matter | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5. Which of the following pairs of compounds can be used to illustrate the law of multiple proportions?   |  |  |  | | --- | --- | --- | |  | a. | NH4 and NH4Cl | |  | b. | ZnO2 and ZnCl2 | |  | c. | H2O and HCl | |  | d. | NO and NO2 | |  | e. | CH4 and CO2 |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.2 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | Dalton's atomic theory | early atomic theory | general chemistry | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6. Which of the following pairs can be used to illustrate the law of multiple proportions?   |  |  |  | | --- | --- | --- | |  | a. | SO and SO2 | |  | b. | CO and CaCO3 | |  | c. | H2O and C12H22O11 | |  | d. | H2SO4 and H2S | |  | e. | KCl and KClO2 |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.2 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | early atomic theory | general chemistry | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7. According to the law of multiple proportions:   |  |  |  | | --- | --- | --- | |  | a. | If the same two elements form two different compounds, they do so in the same ratio. | |  | b. | It is not possible for the same two elements to form more than one compound. | |  | c. | The ratio of the masses of the elements in a compound is always the same. | |  | d. | The total mass after a chemical change is the same as before the change. | |  | e. | None of these. |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.2 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | Dalton's atomic theory | early atomic theory | general chemistry | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8. A sample of chemical X is found to contain 5.0 grams of oxygen, 10.0 grams of carbon, and 20.0 grams of nitrogen. The law of definite proportion would predict that a 75 gram sample of chemical X should contain how many grams of carbon?   |  |  |  | | --- | --- | --- | |  | a. | 5.0 grams | |  | b. | 7.5 grams | |  | c. | 10. grams | |  | d. | 15 grams | |  | e. | 21 grams |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *DIFFICULTY:* | Moderate | | *REFERENCES:* | 2.2 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *KEYWORDS:* | atomic theory of matter | Chemistry | Dalton's atomic theory | early atomic theory | general chemistry | | *OTHER:* | Quantitative | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9. Consider the following two compounds: H2O and H2O2 .According to the law of multiple proportions, the ratio of hydrogen atoms per gram of oxygen in H2O to hydrogen atoms per gram of oxygen in H2O2 is   |  |  |  | | --- | --- | --- | |  | a. | 1:1 | |  | b. | 2:1 | |  | c. | 1:2 | |  | d. | 2:2 | |  | e. | 4:1 |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *DIFFICULTY:* | Moderate | | *REFERENCES:* | 2.2 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | Dalton's atomic theory | early atomic theory | general chemistry | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 10. Which of the following statements from Dalton's atomic theory is no longer true, according to modern atomic theory?   |  |  |  | | --- | --- | --- | |  | a. | Elements are made up of tiny particles called atoms. | |  | b. | Atoms are not created or destroyed in chemical reactions. | |  | c. | All atoms of a given element are identical. | |  | d. | Atoms are indivisible in chemical reactions. | |  | e. | All of these statements are true according to modern atomic theory. |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.3 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | Dalton's atomic theory | early atomic theory | general chemistry | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 11. How many of the following postulates of Dalton's atomic theory are still scientifically accepted?   |  |  | | --- | --- | | I. | All atoms of the same element are identical. | | II. | Compounds are combinations of different atoms. | | III. | A chemical reaction changes the way atoms are grouped together. | | IV. | Atoms are indestructible. |  |  |  |  | | --- | --- | --- | |  | a. | 0 | |  | b. | 1 | |  | c. | 2 | |  | d. | 3 | |  | e. | 4 |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.3 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | Dalton's atomic theory | early atomic theory | general chemistry | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 2/17/2017 1:20 AM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 12. The chemist credited for inventing a set of symbols for writing elements and a system for writing the formulas of compounds (and for discovering selenium, silicon, and thorium) is   |  |  |  | | --- | --- | --- | |  | a. | Boyle | |  | b. | Lavoisier | |  | c. | Priestly | |  | d. | Berzelius | |  | e. | Dalton |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.3 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | False | | *KEYWORDS:* | chemical formula | chemical substance | Chemistry | early atomic theory | general chemistry | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 13. Avogadro's hypothesis states that:   |  |  |  | | --- | --- | --- | |  | a. | Each atom of oxygen is 16 times more massive than an atom of hydrogen. | |  | b. | A given compound always contains exactly the same proportion of elements by mass. | |  | c. | When two elements form a series of compounds, the ratios of masses that combine with 1 gram of the first element can always be reduced to small whole numbers. | |  | d. | At the same temperature and pressure, equal volumes of different gases contain an equal number of particles. | |  | e. | Mass is neither created nor destroyed in a chemical reaction. |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.3 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | Chemistry | early atomic theory | general chemistry | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14. The first scientist to show that atoms emit any negative particles was   |  |  |  | | --- | --- | --- | |  | a. | J. J. Thomson | |  | b. | Lord Kelvin | |  | c. | Ernest Rutherford | |  | d. | William Thomson | |  | e. | John Dalton |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.4 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | discovery of electron | early atomic theory | general chemistry | structure of the atom | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 15. Many classic experiments have given us indirect evidence of the nature of the atom. Which of the experiments listed below did not give the results described?   |  |  |  | | --- | --- | --- | |  | a. | The Rutherford experiment proved the Thomson "plum-pudding" model of the atom to be essentially correct. | |  | b. | The Rutherford experiment was useful in determining the nuclear charge on the atom. | |  | c. | Millikan's oil-drop experiment showed that the charge on any particle was a simple multiple of the charge on the electron. | |  | d. | The electric discharge tube proved that electrons have a negative charge. | |  | e. | All of the above experiments gave the results described. |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.4 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | early atomic theory | general chemistry | structure of the atom | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 16. The scientist whose alpha-particle scattering experiment led him to conclude that the nucleus of an atom contains a dense center of positive charge is   |  |  |  | | --- | --- | --- | |  | a. | J. J. Thomson | |  | b. | Lord Kelvin | |  | c. | Ernest Rutherford | |  | d. | William Thomson | |  | e. | John Dalton |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.4 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | early atomic theory | general chemistry | nuclear model of atom | structure of the atom | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 17. Alpha particles beamed at thin metal foil may   |  |  |  | | --- | --- | --- | |  | a. | pass directly through without changing direction | |  | b. | be slightly diverted by attraction to electrons | |  | c. | be reflected by direct contact with nuclei | |  | d. | A and C | |  | e. | A, B, and C |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.4 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | early atomic theory | general chemistry | nuclear model of atom | structure of the atom | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 18. Which one of the following statements about atomic structure is false?   |  |  |  | | --- | --- | --- | |  | a. | An atom is mostly empty space. | |  | b. | Almost all of the mass of the atom is concentrated in the nucleus. | |  | c. | The protons and neutrons in the nucleus are very tightly packed. | |  | d. | The number of protons and neutrons is always the same in the neutral atom. | |  | e. | All of the above statements (A-D) are true. |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.4 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | early atomic theory | general chemistry | nuclear model of atom | structure of the atom | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 19. If the Thomson model of the atom had been correct, Rutherford would have observed:   |  |  |  | | --- | --- | --- | |  | a. | Alpha particles going through the foil with little or no deflection. | |  | b. | Alpha particles greatly deflected by the metal foil. | |  | c. | Alpha particles bouncing off the foil. | |  | d. | Positive particles formed in the foil. | |  | e. | None of the above observations is consistent with the Thomson model of the atom. |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.4 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | early atomic theory | general chemistry | nuclear model of atom | structure of the atom | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 20. Which statement is *not* correct?   |  |  |  | | --- | --- | --- | |  | a. | The mass of an alpha particle is 7300 times that of the electron. | |  | b. | An alpha particle has a 2+ charge. | |  | c. | Three types of radioactive emission are gamma rays, beta rays, and alpha particles. | |  | d. | A gamma ray is high-energy light. | |  | e. | There are only three types of radioactivity known to scientists today. |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.4 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | early atomic theory | general chemistry | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 21. Rutherford's experiment was important because it showed that:   |  |  |  | | --- | --- | --- | |  | a. | Radioactive elements give off alpha particles. | |  | b. | Gold foil can be made to be only a few atoms thick. | |  | c. | A zinc sulfide screen scintillates when struck by a charged particle. | |  | d. | The mass of the atom is uniformly distributed throughout the atom. | |  | e. | An atom is mostly empty space. |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.4 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | early atomic theory | general chemistry | nuclear model of atom | structure of the atom | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 22. Bromine exists naturally as a mixture of bromine-79 and bromine-81 isotopes. An atom of bromine-79 contains   |  |  |  | | --- | --- | --- | |  | a. | 35 protons, 44 neutrons, 35 electrons | |  | b. | 34 protons and 35 electrons, only | |  | c. | 44 protons, 44 electrons, and 35 neutrons | |  | d. | 35 protons, 79 neutrons, and 35 electrons | |  | e. | 79 protons, 79 electrons, and 35 neutrons |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.5 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | early atomic theory | general chemistry | nuclear structure | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 23. Which of the following atomic symbols is incorrect?   |  |  |  | | --- | --- | --- | |  | a. |  | |  | b. |  | |  | c. |  | |  | d. |  | |  | e. |  |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.5 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | early atomic theory | general chemistry | structure of the atom | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 24. The element rhenium (Re) exists as two stable isotopes and 18 unstable isotopes. Rhenium-185 has in its nucleus   |  |  |  | | --- | --- | --- | |  | a. | 75 protons, 75 neutrons | |  | b. | 75 protons, 130 neutrons | |  | c. | 130 protons, 75 neutrons | |  | d. | 75 protons, 110 neutrons | |  | e. | not enough information |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.5 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | early atomic theory | general chemistry | isotope | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 25. Which among the following represent a set of isotopes? Atomic nuclei containing:   |  |  | | --- | --- | | I. | 20 protons and 20 neutrons | | II. | 21 protons and 19 neutrons | | III. | 22 neutrons and 18 protons | | IV. | 20 protons and 22 neutrons | | V. | 21 protons and 20 neutrons |  |  |  |  | | --- | --- | --- | |  | a. | I, II, III | |  | b. | III, IV | |  | c. | I, V | |  | d. | I, IV and II, V | |  | e. | No isotopes are indicated. |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.5 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | early atomic theory | general chemistry | isotope | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 2/17/2017 1:52 AM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 26. By knowing the number of protons a neutral atom has, you should be able to determine   |  |  |  | | --- | --- | --- | |  | a. | the number of neutrons in the neutral atom | |  | b. | the number of electrons in the neutral atom | |  | c. | the name of the atom | |  | d. | two of the above | |  | e. | none of the above |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.5 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | early atomic theory | general chemistry | nuclear structure | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 27. Which of the following statements are *true* of uranium-238?   |  |  | | --- | --- | | I. | Its chemical properties will be exactly like those of uranium-235. | | II. | Its mass will be slightly different from that of an atom of uranium-235. | | III. | It will contain a different number of protons than an atom of uranium-235. | | IV. | It is more plentiful in nature than uranium-235. |  |  |  |  | | --- | --- | --- | |  | a. | III, IV | |  | b. | I, II, III | |  | c. | I, II, IV | |  | d. | II, III, IV | |  | e. | all of these |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.5 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | early atomic theory | general chemistry | isotope | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 2/17/2017 1:56 AM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 28. An isotope, *X*, of a particular element has an atomic number of 8 and a mass number of 18. Therefore:   |  |  |  | | --- | --- | --- | |  | a. | *X* is an isotope of oxygen. | |  | b. | *X* has 10 neutrons per atom. | |  | c. | *X* has an atomic mass of 15.9994. | |  | d. | A and B. | |  | e. | A, B, and C. |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.5 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *KEYWORDS:* | atomic theory of matter | Chemistry | early atomic theory | general chemistry | isotope | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 29. Which of the following statements is true?   |  |  |  | | --- | --- | --- | |  | a. | Ions are formed by adding or removing protons or electrons. | |  | b. | Scientists believe that solids are mostly open space. | |  | c. | Heating water with a Bunsen burner results in a 2:1 mixture of hydrogen and oxygen gases. | |  | d. | At least two of the above statements (A-C) are true. | |  | e. | All of the statements (A-C) are false. |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *DIFFICULTY:* | Moderate | | *REFERENCES:* | 2.5 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | Chemistry | early atomic theory | general chemistry | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 30. The number of neutrons in an atom is the same for all neutral atoms of that element.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.5 | | *QUESTION TYPE:* | True / False | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | early atomic theory | general chemistry | isotope | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 31. The number of electrons in an atom is the same for all neutral atoms of that element.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.5 | | *QUESTION TYPE:* | True / False | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | early atomic theory | general chemistry | nuclear structure | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 32.  has   |  |  |  | | --- | --- | --- | |  | a. | 20 protons, 20 neutrons, and 18 electrons | |  | b. | 22 protons, 20 neutrons, and 20 electrons | |  | c. | 20 protons, 22 neutrons, and 18 electrons | |  | d. | 22 protons, 18 neutrons, and 18 electrons | |  | e. | 20 protons, 20 neutrons, and 22 electrons |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.6 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | early atomic theory | general chemistry | isotope | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 2/17/2017 3:06 AM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 33. Which of the following statements is (are) true?   |  |  |  | | --- | --- | --- | |  | a. | and have the same number of neutrons. | |  | b. | and are isotopes of each other because their mass numbers are the same. | |  | c. | has the same number of electrons as . | |  | d. | A and B | |  | e. | A and C |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.6 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | early atomic theory | general chemistry | isotope | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 34. A species with 12 protons and 10 electrons is   |  |  |  | | --- | --- | --- | |  | a. | Ne2+ | |  | b. | Ti2+ | |  | c. | Mg2+ | |  | d. | Mg | |  | e. | Ne2– |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.6 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | early atomic theory | general chemistry | nuclear structure | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 35. The numbers of protons, neutrons, and electrons in K+ are:   |  |  |  | | --- | --- | --- | |  | a. | 20 p, 19 n, 19 e | |  | b. | 20 p, 19 n, 20 e | |  | c. | 19 p, 20 n, 20 e | |  | d. | 19 p, 20 n, 19 e | |  | e. | 19 p, 20 n, 18 e |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.6 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | early atomic theory | general chemistry | nuclear structure | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 36. An ion is formed   |  |  |  | | --- | --- | --- | |  | a. | By either adding or subtracting protons from the atom. | |  | b. | By either adding or subtracting electrons from the atom | |  | c. | By either adding or subtracting neutrons from the atom. | |  | d. | All of the above are true. | |  | e. | Two of the above are true. |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.6 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | chemical formula | chemical substance | Chemistry | early atomic theory | general chemistry | ionic substance | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 37. The formula of water, H2O, suggests:   |  |  |  | | --- | --- | --- | |  | a. | There is twice as much mass of hydrogen as oxygen in each molecule. | |  | b. | There are two hydrogen atoms and one oxygen atom per water molecule. | |  | c. | There is twice as much mass of oxygen as hydrogen in each molecule. | |  | d. | There are two oxygen atoms and one hydrogen atom per water molecule. | |  | e. | None of these. |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.6 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | chemical formula | chemical substance | Chemistry | early atomic theory | general chemistry | molecular substance | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 38. All of the following are true *except*:   |  |  |  | | --- | --- | --- | |  | a. | Ions are formed by adding electrons to a neutral atom. | |  | b. | Ions are formed by changing the number of protons in an atom's nucleus. | |  | c. | Ions are formed by removing electrons from a neutral atom. | |  | d. | An ion has a positive or negative charge. | |  | e. | Metals tend to form positive ions. |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.6 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | chemical formula | chemical substance | Chemistry | early atomic theory | general chemistry | ionic substance | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 39. Which of the following are incorrectly paired?   |  |  |  | | --- | --- | --- | |  | a. | K, alkali metal | |  | b. | Ba, alkaline earth metal | |  | c. | O, halogen | |  | d. | Ne, noble gas | |  | e. | Ni, transition metal |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.7 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | Chemistry | early atomic theory | general chemistry | group | periodic table | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 40. Which of the following are *incorrectly* paired?   |  |  |  | | --- | --- | --- | |  | a. | Sr, alkaline earth metal | |  | b. | Ir, transition metal | |  | c. | F, halogen | |  | d. | As, halogen | |  | e. | V, transition metal |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.7 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *KEYWORDS:* | Chemistry | early atomic theory | general chemistry | group | periodic table | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 41. Which of the following are *incorrectly* paired?   |  |  |  | | --- | --- | --- | |  | a. | Phosphorus, Pr | |  | b. | Palladium, Pd | |  | c. | Platinum, Pt | |  | d. | Lead, Pb | |  | e. | Potassium, K |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.7 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | Chemistry | early atomic theory | general chemistry | periodic table | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 42. Which of the following are *incorrectly* paired?   |  |  |  | | --- | --- | --- | |  | a. | Copper, Cu | |  | b. | Carbon, C | |  | c. | Cobalt, Co | |  | d. | Calcium, Ca | |  | e. | Cesium, Ce |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.7 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | Chemistry | early atomic theory | general chemistry | periodic table | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 43. Which of the following are *incorrectly* paired?   |  |  |  | | --- | --- | --- | |  | a. | Antimony, Sb | |  | b. | Silicon, Si | |  | c. | Silver, Ag | |  | d. | Argon, Ar | |  | e. | Astatine, As |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.7 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | Chemistry | early atomic theory | general chemistry | periodic table | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 44. All of the following are characteristics of metals *except*:   |  |  |  | | --- | --- | --- | |  | a. | good conductors of heat | |  | b. | malleable | |  | c. | ductile | |  | d. | often lustrous | |  | e. | tend to gain electrons in chemical reactions |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.7 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | Chemistry | early atomic theory | general chemistry | metal | periodic table | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 45. All of the following are characteristics of nonmetals *except*:   |  |  |  | | --- | --- | --- | |  | a. | poor conductors of electricity | |  | b. | often bond to each other by forming covalent bonds | |  | c. | tend to form negative ions in chemical reactions with metals | |  | d. | appear in the upper left-hand corner of the periodic table | |  | e. | do not have a shiny (lustrous) appearance |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.7 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | Chemistry | early atomic theory | general chemistry | nonmetal | periodic table | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 46. Which of the following has 61 neutrons, 47 protons, and 46 electrons?   |  |  |  | | --- | --- | --- | |  | a. | Pm | |  | b. | Ag+ | |  | c. | Pd– | |  | d. | Cd+ | |  | e. | Ag |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.7 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | Chemistry | early atomic theory | general chemistry | periodic table | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 47. How many protons and electrons does the most stable ion for magnesium have?   |  |  | | --- | --- | | # protons | # electrons |  |  |  |  | | --- | --- | --- | |  | a. | 10 p             12 e | |  | b. | 12 p            14 e | |  | c. | 14 p            12 e | |  | d. | 12 p            12 e | |  | e. | 12 p           10 e |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *DIFFICULTY:* | Moderate | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *KEYWORDS:* | Chemistry | early atomic theory | general chemistry | group | periodic table | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 2/17/2017 3:34 AM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 48. You are given a compound with the formula MCl2, in which M is a metal. You are told that the metal ion has 24 electrons. What is the identity of the metal?   |  |  |  | | --- | --- | --- | |  | a. | Cr | |  | b. | Al | |  | c. | Ni | |  | d. | Mn | |  | e. | Fe |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *DIFFICULTY:* | Moderate | | *REFERENCES:* | 2.7 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *KEYWORDS:* | chemical formula | chemical substance | Chemistry | early atomic theory | general chemistry | ionic substance | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 1/23/2017 6:15 AM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 49. Which of the following names is incorrect?   |  |  |  | | --- | --- | --- | |  | a. | cobalt(II) chloride | |  | b. | magnesium oxide | |  | c. | aluminum(III) oxide | |  | d. | diphosphorus pentoxide | |  | e. | All of the above names are correct. |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | chemical substance | Chemistry | early atomic theory | general chemistry | nomenclature of simple compound | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 50. Which of the following pairs is incorrect?   |  |  |  | | --- | --- | --- | |  | a. | iodine trichloride, ICl3 | |  | b. | phosphorus pentoxide, P2O5 | |  | c. | ammonia, NH3 | |  | d. | sulfur hexafluoride, SF6 | |  | e. | All of the above pairs are correct. |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | binary molecular compound | chemical substance | Chemistry | early atomic theory | general chemistry | nomenclature of simple compound | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 51. The correct name for LiCl is   |  |  |  | | --- | --- | --- | |  | a. | lithium monochloride | |  | b. | lithium(I) chloride | |  | c. | monolithium chloride | |  | d. | lithium chloride | |  | e. | monolithium monochloride |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | False | | *KEYWORDS:* | chemical substance | Chemistry | early atomic theory | general chemistry | ionic compound | nomenclature of simple compound | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 52. How many oxygen atoms are there in one formula unit of Ca3(PO4)2?   |  |  |  | | --- | --- | --- | |  | a. | 2 | |  | b. | 4 | |  | c. | 6 | |  | d. | 8 | |  | e. | none of these |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | False | | *KEYWORDS:* | chemical formula | chemical substance | Chemistry | early atomic theory | general chemistry | ionic substance | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 53. How many oxygen atoms are there in 3 formula units of Al(NO2)3?   |  |  |  | | --- | --- | --- | |  | a. | 6 | |  | b. | 15 | |  | c. | 18 | |  | d. | 9 | |  | e. | 21 |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *KEYWORDS:* | chemical formula | chemical substance | Chemistry | early atomic theory | general chemistry | ionic substance | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:31 PM | | *DATE MODIFIED:* | 3/4/2016 4:31 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 54. The correct name for FeO is   |  |  |  | | --- | --- | --- | |  | a. | iron oxide | |  | b. | iron(II) oxide | |  | c. | iron(III) oxide | |  | d. | iron monoxide | |  | e. | iron(I) oxide |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | False | | *KEYWORDS:* | chemical substance | Chemistry | early atomic theory | general chemistry | ionic compound | nomenclature of simple compound | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 55. The correct name for Ca2+ is   |  |  |  | | --- | --- | --- | |  | a. | calcium | |  | b. | calcium(II) ion | |  | c. | calcium ion | |  | d. | calcium(I) ion | |  | e. | monocalcium ion |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | False | | *KEYWORDS:* | chemical formula | chemical substance | Chemistry | early atomic theory | general chemistry | ionic substance | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 56. The correct name for V2+ is   |  |  |  | | --- | --- | --- | |  | a. | vanadide | |  | b. | vanadite ion | |  | c. | vanadium(II) ion | |  | d. | vanadium(VI) ion | |  | e. | divanadium ion |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *KEYWORDS:* | chemical formula | chemical substance | Chemistry | early atomic theory | general chemistry | ionic substance | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 57. The correct name for N3– is   |  |  |  | | --- | --- | --- | |  | a. | nitride ion | |  | b. | nitrogen ion | |  | c. | nitrogen(III) ion | |  | d. | nitro(III) ion | |  | e. | nitrite |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *KEYWORDS:* | chemical formula | chemical substance | Chemistry | early atomic theory | general chemistry | ionic substance | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 12/7/2016 1:55 AM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 58. What is the subscript of rubidium in the formula of rubidium sulfate?   |  |  |  | | --- | --- | --- | |  | a. | 2 | |  | b. | 3 | |  | c. | 0 | |  | d. | 4 | |  | e. | 1 |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *KEYWORDS:* | chemical formula | chemical substance | Chemistry | early atomic theory | general chemistry | ionic substance | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 59. The formula for calcium bisulfate is   |  |  |  | | --- | --- | --- | |  | a. | Ca(SO4)2 | |  | b. | CaS2 | |  | c. | Ca(HSO4)2 | |  | d. | Ca2HSO4 | |  | e. | Ca2S |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | False | | *KEYWORDS:* | chemical substance | Chemistry | early atomic theory | general chemistry | ionic compound | nomenclature of simple compound | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 60. The formula for calcium hydrogen phosphate is   |  |  |  | | --- | --- | --- | |  | a. | CaHPO4 | |  | b. | Ca(HPO4)2 | |  | c. | CaH2PO4 | |  | d. | Ca2HPO4 | |  | e. | Ca2H2PO4 |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | True | | *KEYWORDS:* | chemical substance | Chemistry | early atomic theory | general chemistry | ionic compound | nomenclature of simple compound | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 2/17/2017 3:56 AM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 61. Which of the following is *incorrectly* named?   |  |  |  | | --- | --- | --- | |  | a. | Pb(NO3)2, lead(II) nitrate | |  | b. | NH4ClO4, ammonium perchlorate | |  | c. | PO43–, phosphate ion | |  | d. | Mg(OH)2, magnesium hydroxide | |  | e. | NO3–, nitrite ion |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | chemical substance | Chemistry | early atomic theory | general chemistry | ionic compound | nomenclature of simple compound | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 62. Which of the following is *incorrectly* named?   |  |  |  | | --- | --- | --- | |  | a. | SO42–, sulfate ion | |  | b. | S2O32–, thiosulfate ion | |  | c. | PO43–, phosphate ion | |  | d. | ClO3–, chlorite ion | |  | e. | CN–, cyanide ion |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | True | | *KEYWORDS:* | chemical substance | Chemistry | early atomic theory | general chemistry | ionic compound | nomenclature of simple compound | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 63. All of the following are in aqueous solution. Which is *incorrectly* named?   |  |  |  | | --- | --- | --- | |  | a. | H2SO4, sulfuric acid | |  | b. | H2CO3, carbonic acid | |  | c. | H3PO4, phosphoric acid | |  | d. | HCN, cyanic acid | |  | e. | HCl, hydrochloric acid |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | acid | chemical substance | Chemistry | early atomic theory | general chemistry | nomenclature of simple compound | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 64. All of the following are in aqueous solution. Which is *incorrectly* named?   |  |  |  | | --- | --- | --- | |  | a. | HC2H3O2, acetic acid | |  | b. | HBr, bromic acid | |  | c. | H2SO3, sulfurous acid | |  | d. | HNO2, nitrous acid | |  | e. | HClO3, chloric acid |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | acid | chemical substance | Chemistry | early atomic theory | general chemistry | nomenclature of simple compound | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 65. Which of the following pairs is *incorrect?*   |  |  |  | | --- | --- | --- | |  | a. | NH4Br, ammonium bromide | |  | b. | K2CO3, potassium carbonate | |  | c. | BaPO4, barium phosphate | |  | d. | CuCl, copper(I) chloride | |  | e. | MnO2, manganese(IV) oxide |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | chemical substance | Chemistry | early atomic theory | general chemistry | ionic compound | nomenclature of simple compound | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 66. Which of the following name(s) is(are) correct?   |  |  | | --- | --- | | 1. | sulfide, S2– | | 2. | ammonium chloride, NH4Cl | | 3. | acetic acid, HC2H3O2 | | 4. | barium oxide, BaO |  |  |  |  | | --- | --- | --- | |  | a. | all | |  | b. | none | |  | c. | 1, 2 | |  | d. | 3, 4 | |  | e. | 1, 3, 4 |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | chemical substance | Chemistry | early atomic theory | general chemistry | nomenclature of simple compound | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 67. Which metals form cations with varying positive charges?   |  |  |  | | --- | --- | --- | |  | a. | transition metals | |  | b. | Group 1 metals | |  | c. | Group 2 metals | |  | d. | Group 3 metals | |  | e. | metalloids |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | chemical formula | chemical substance | Chemistry | early atomic theory | general chemistry | ionic substance | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 68. Three samples of a solid substance composed of elements A and Z were prepared. The first contained 4.31 g A and 7.70 g Z. The second sample was 35.9% A and 64.1% Z. It was observed that 0.718 g A reacted with Z to form 2.00 g of the third sample. Show that these data illustrate the law of definite composition.   |  |  | | --- | --- | | *ANSWER:* | Sample (1): ratio of masses (Z/A) = 7.70/4.13 = 1.785 Sample (2): ratio of masses (Z/A) = 64.1/35.9 = 1.785 Sample (3): ratio of masses (Z/A) = (2.00-0.718)/0.718 = 1.785 These three samples thus illustrate that a given compound always contains the same proportion of elements by mass. See Sec. 2.2 of Zumdahl, *Chemistry*. | | *POINTS:* | 1 | | *DIFFICULTY:* | Moderate | | *REFERENCES:* | 2.2 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | Dalton's atomic theory | early atomic theory | general chemistry | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 69. Explain how Dalton’s atomic theory accounts for: a)  the law of conservation of mass b)  the law of definite composition c)  the law of multiple proportion   |  |  | | --- | --- | | *ANSWER:* | (a) Chemical reactions involve only reorganization of the atoms. (b) A given compound always has the same relative numbers and types of atoms. (c) Since, according to Dalton, atoms of a given element are identical and a given compound always has the same relative numbers and types of atoms, the observation of different mass ratio combinations of the same elements to give different compounds supports the law of multiple proportion. See Sec. 2.3 of Zumdahl, *Chemistry*. | | *POINTS:* | 1 | | *DIFFICULTY:* | Moderate | | *REFERENCES:* | 2.3 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | Dalton's atomic theory | early atomic theory | general chemistry | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 70. Complete the following table.   |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Symbol** | **# Protons** | **# Neutrons** | **# Electrons** | **Net Charge** | | 206Pb |  |  |  |  | |  | 31 | 38 |  | 3+ | |  | 52 | 75 | 54 |  | | Mn2+ |  | 30 |  | 2+ |   ​  ​     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | *ANSWER:* | |  |  |  |  |  | | --- | --- | --- | --- | --- | | **Symbol** | **# Protons** | **# Neutrons** | **# Electrons** | **Net Charge** | | 206Pb | 82 | 124 | 82 | 0 | | Ga3+ | 31 | 38 | 28 | 3+ | | Te2– | 52 | 75 | 54 | 2- | | Mn2+ | 25 | 29 | 23 | 2+ |   ​  ​  ​  ​ | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.5 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | early atomic theory | general chemistry | nuclear structure | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 2/17/2017 4:32 AM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 71. Complete the following table.   |  |  |  | | --- | --- | --- | | **Symbol** | **69Ga3+** |  | | Number of protons |  | 34 | | Number of neutrons |  | 46 | | Number of electrons |  |  | | Atomic number |  |  | | Mass number |  |  | | Net charge |  | 2– |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | *ANSWER:* | |  |  |  | | --- | --- | --- | | **Symbol** | **69Ga3+** | 80Se2– | | Number of protons | 31 | 34 | | Number of neutrons | 38 | 46 | | Number of electrons | 28 | 36 | | Atomic number | 31 | 34 | | Mass number | 69 | 80 | | Net charge | +3 | 2– | | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.5 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | early atomic theory | general chemistry | nuclear structure | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 72. Arsenopyrite is a mineral containing As, Fe, and S. Classify each element as metal, nonmetal, or metalloid.   |  |  | | --- | --- | | *ANSWER:* | As = metalloid, Fe = metal, S = nonmetal | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.7 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | False | | *KEYWORDS:* | Chemistry | early atomic theory | general chemistry | periodic table | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 73. Write the symbol for each of the following elements.   |  |  |  |  | | --- | --- | --- | --- | | a) | silver |  | \_\_\_\_\_\_\_\_\_\_\_\_\_ | | b) | calcium |  | \_\_\_\_\_\_\_\_\_\_\_\_\_ | | c) | iodine |  | \_\_\_\_\_\_\_\_\_\_\_\_\_ | | d) | copper |  | \_\_\_\_\_\_\_\_\_\_\_\_\_ | | e) | phosphorus |  | \_\_\_\_\_\_\_\_\_\_\_\_\_ |  |  |  | | --- | --- | | *ANSWER:* | a) Ag, b) Ca, c) I, d) Cu, e) P | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.7 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | False | | *KEYWORDS:* | Chemistry | early atomic theory | general chemistry | periodic table | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 74. Write the names of the following compounds:   |  |  |  |  | | --- | --- | --- | --- | | a) | FeSO4 |  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | b) | NaC2H3O2 |  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | c) | KNO2 |  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | d) | Ca(OH)2 |  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | e) | NiCO3 |  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  |  |  | | --- | --- | | *ANSWER:* | a) iron(II) sulfate b) sodium acetate c) potassium nitrite d) calcium hydroxide e) nickel(II) carbonate | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | False | | *KEYWORDS:* | chemical substance | Chemistry | early atomic theory | general chemistry | ionic compound | nomenclature of simple compound | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 75. Write the chemical formulas for the following compounds or ions.   |  |  |  |  | | --- | --- | --- | --- | | a) | nitrate ion |  | \_\_\_\_\_\_\_\_\_ | | b) | aluminum oxide |  | \_\_\_\_\_\_\_\_\_ | | c) | ammonium ion |  | \_\_\_\_\_\_\_\_\_ | | d) | perchloric acid |  | \_\_\_\_\_\_\_\_\_ | | e) | copper(II) bromide |  | \_\_\_\_\_\_\_\_\_ |  |  |  | | --- | --- | | *ANSWER:* | a) NO3–          b) Al2O3          c) NH4+          d) HClO4          e) CuBr2 | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | False | | *KEYWORDS:* | chemical formula | chemical substance | Chemistry | early atomic theory | general chemistry | ionic substance | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 76. How many atoms (total) are there in one formula unit of Ca3(PO4)2?   |  |  | | --- | --- | | *ANSWER:* | 13 | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | False | | *KEYWORDS:* | chemical formula | chemical substance | Chemistry | early atomic theory | general chemistry | ionic substance | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |
| --- |
| Name the following compounds: |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 77. Al2(SO4)3   |  |  | | --- | --- | | *ANSWER:* | aluminum sulfate | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | False | | *PREFACE NAME:* | Ref 2-1 | | *KEYWORDS:* | chemical substance | Chemistry | early atomic theory | general chemistry | ionic compound | nomenclature of simple compound | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 78. NH4NO3   |  |  | | --- | --- | | *ANSWER:* | ammonium nitrate | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | False | | *PREFACE NAME:* | Ref 2-1 | | *KEYWORDS:* | chemical substance | Chemistry | early atomic theory | general chemistry | ionic compound | nomenclature of simple compound | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 79. NaH   |  |  | | --- | --- | | *ANSWER:* | sodium hydride | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | False | | *PREFACE NAME:* | Ref 2-1 | | *KEYWORDS:* | chemical substance | Chemistry | early atomic theory | general chemistry | ionic compound | nomenclature of simple compound | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 80. K2Cr2O7   |  |  | | --- | --- | | *ANSWER:* | potassium dichromate | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | False | | *PREFACE NAME:* | Ref 2-1 | | *KEYWORDS:* | chemical substance | Chemistry | early atomic theory | general chemistry | ionic compound | nomenclature of simple compound | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 81. CCl4   |  |  | | --- | --- | | *ANSWER:* | carbon tetrachloride | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | False | | *PREFACE NAME:* | Ref 2-1 | | *KEYWORDS:* | binary molecular compound | chemical substance | Chemistry | early atomic theory | general chemistry | nomenclature of simple compound | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 82. AgCl   |  |  | | --- | --- | | *ANSWER:* | silver chloride | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | False | | *PREFACE NAME:* | Ref 2-1 | | *KEYWORDS:* | chemical substance | Chemistry | early atomic theory | general chemistry | ionic compound | nomenclature of simple compound | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 83. CaSO4   |  |  | | --- | --- | | *ANSWER:* | calcium sulfate | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | False | | *PREFACE NAME:* | Ref 2-1 | | *KEYWORDS:* | chemical substance | Chemistry | early atomic theory | general chemistry | ionic compound | nomenclature of simple compound | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 84. HNO2   |  |  | | --- | --- | | *ANSWER:* | nitrous acid | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | False | | *PREFACE NAME:* | Ref 2-1 | | *KEYWORDS:* | acid | chemical substance | Chemistry | early atomic theory | general chemistry | nomenclature of simple compound | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 85. N2O3   |  |  | | --- | --- | | *ANSWER:* | dinitrogen trioxide | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | False | | *PREFACE NAME:* | Ref 2-1 | | *KEYWORDS:* | binary molecular compound | chemical substance | Chemistry | early atomic theory | general chemistry | nomenclature of simple compound | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 86. SnI2   |  |  | | --- | --- | | *ANSWER:* | tin(II) iodide | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | False | | *PREFACE NAME:* | Ref 2-1 | | *KEYWORDS:* | chemical substance | Chemistry | early atomic theory | general chemistry | ionic compound | nomenclature of simple compound | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |
| --- |
| Write the formula for: |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 87. sodium thiosulfate   |  |  | | --- | --- | | *ANSWER:* | Na2S2O3 | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | False | | *PREFACE NAME:* | Ref 2-2 | | *KEYWORDS:* | chemical formula | chemical substance | Chemistry | early atomic theory | general chemistry | ionic substance | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 88. iron(III) oxide   |  |  | | --- | --- | | *ANSWER:* | Fe2O3 | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | False | | *PREFACE NAME:* | Ref 2-2 | | *KEYWORDS:* | chemical formula | chemical substance | Chemistry | early atomic theory | general chemistry | ionic substance | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 89. dichlorine heptoxide   |  |  | | --- | --- | | *ANSWER:* | Cl2O7 | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | False | | *PREFACE NAME:* | Ref 2-2 | | *KEYWORDS:* | chemical formula | chemical substance | Chemistry | early atomic theory | general chemistry | molecular substance | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 90. cobalt(II) chloride   |  |  | | --- | --- | | *ANSWER:* | CoCl2 | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | False | | *PREFACE NAME:* | Ref 2-2 | | *KEYWORDS:* | chemical formula | chemical substance | Chemistry | early atomic theory | general chemistry | ionic substance | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 91. aluminum hydroxide   |  |  | | --- | --- | | *ANSWER:* | Al(OH)3 | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | False | | *PREFACE NAME:* | Ref 2-2 | | *KEYWORDS:* | chemical formula | chemical substance | Chemistry | early atomic theory | general chemistry | ionic substance | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 92. sulfurous acid   |  |  | | --- | --- | | *ANSWER:* | H2SO3 | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | False | | *PREFACE NAME:* | Ref 2-2 | | *KEYWORDS:* | acid | chemical substance | Chemistry | early atomic theory | general chemistry | nomenclature of simple compound | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 93. nitric acid   |  |  | | --- | --- | | *ANSWER:* | HNO3 | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | False | | *PREFACE NAME:* | Ref 2-2 | | *KEYWORDS:* | acid | chemical substance | Chemistry | early atomic theory | general chemistry | nomenclature of simple compound | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 94. phosphoric acid   |  |  | | --- | --- | | *ANSWER:* | H3PO4 | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | False | | *PREFACE NAME:* | Ref 2-2 | | *KEYWORDS:* | acid | chemical substance | Chemistry | early atomic theory | general chemistry | nomenclature of simple compound | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 95. acetic acid   |  |  | | --- | --- | | *ANSWER:* | CH3COOH | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | False | | *PREFACE NAME:* | Ref 2-2 | | *KEYWORDS:* | acid | chemical substance | Chemistry | early atomic theory | general chemistry | nomenclature of simple compound | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 96. phosphorus trichloride   |  |  | | --- | --- | | *ANSWER:* | PCl3 | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | False | | *PREFACE NAME:* | Ref 2-2 | | *KEYWORDS:* | binary molecular compound | chemical substance | Chemistry | early atomic theory | general chemistry | nomenclature of simple compound | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 97. Which of these statements is a consequence (follows from) the Law of Definite Proportion?   |  |  |  | | --- | --- | --- | |  | a. | All samples of chlorine contain 35Cl and 37Cl in the same (definite) ratio. | |  | b. | The mass of oxygen that is combined with a fixed mass of nitrogen in each of the binary nitrogen oxides can be expressed as a ratio of small whole numbers. | |  | c. | The atomic masses of all of the elements in the periodic table have fixed values. | |  | d. | The % lead by mass in the compound galena is the same for all pure samples obtained from any source. | |  | e. | None of these is correct |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.2 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | Dalton's atomic theory | early atomic theory | general chemistry | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 98. Which of these statements is a consequence (follows from) the Law of Multiple Proportions?   |  |  |  | | --- | --- | --- | |  | a. | All samples of chlorine contain 35Cl and 37Cl in the same (definite) ratio. | |  | b. | The mass of oxygen that is combined with a fixed mass of nitrogen in each of the binary nitrogen oxides can be expressed as a ratio of small whole numbers. | |  | c. | The atomic masses of all of the elements in the periodic table have fixed values. | |  | d. | The % lead by mass in the compound galena is the same for all pure samples obtained from any source. | |  | e. | None of these is correct |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.2 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | Dalton's atomic theory | early atomic theory | general chemistry | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 99. Which of the following elements does NOT have a symbol taken from a LATIN name for the element or one of its compounds?   |  |  |  | | --- | --- | --- | |  | a. | iron | |  | b. | copper | |  | c. | sodium | |  | d. | potassium | |  | e. | titanium |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.7 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | Chemistry | early atomic theory | general chemistry | periodic table | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 1/23/2017 6:44 AM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 100. Which of the following statements is FALSE?   |  |  |  | | --- | --- | --- | |  | a. | sulfur does not conduct electricity | |  | b. | gold is malleable | |  | c. | germanium is a metal | |  | d. | silicon is a metalloid | |  | e. | hydrogen is a non-metal |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.7 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | Chemistry | early atomic theory | general chemistry | periodic table | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 1/23/2017 6:45 AM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 101. Which of the following ions is NOT likely to form from the appropriate atom?   |  |  |  | | --- | --- | --- | |  | a. | C4+ | |  | b. | As3- | |  | c. | Mg2+ | |  | d. | Ti4+ | |  | e. | Na+ |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *DIFFICULTY:* | Moderate | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | Chemistry | early atomic theory | general chemistry | group | periodic table | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 1/23/2017 6:45 AM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 102. How many protons, neutrons and electrons, in that order are present in the anion formed by one atom of 125I?   |  |  |  | | --- | --- | --- | |  | a. | 53, 74, 54 | |  | b. | 52, 72, 53 | |  | c. | 54, 72, 53 | |  | d. | 53, 72, 54 | |  | e. | 54, 74, 54 |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *DIFFICULTY:* | Moderate | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | early atomic theory | general chemistry | isotope | periodic table | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 1/23/2017 6:45 AM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 103. How many protons, neutrons and electrons, in that order are present in the anion formed by one atom of 79Se?   |  |  |  | | --- | --- | --- | |  | a. | 34, 34, 45 | |  | b. | 34, 45, 34 | |  | c. | 32, 45, 34 | |  | d. | 34, 45, 36 | |  | e. | 36, 45, 36 |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *DIFFICULTY:* | Moderate | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | early atomic theory | general chemistry | isotope | periodic table | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 1/23/2017 6:46 AM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 104. Which statement is INCORRECT?   |  |  |  | | --- | --- | --- | |  | a. | An atom of 60Zn has an equal number of protons and neutrons | |  | b. | An atom of 50Mn has an equal number of electrons and neutrons | |  | c. | An atom of 18O has an equal number of protons and neutrons | |  | d. | An atom of 41K has an equal number of protons and electrons | |  | e. | An atom of 238U contains 146 neutrons. |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *DIFFICULTY:* | Moderate | | *REFERENCES:* | 2.5 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | early atomic theory | general chemistry | isotope | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 3/4/2016 4:32 PM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 105. Which of the following atoms, isotopes or ions contains 23 protons, 18 electrons and 27 neutrons?   |  |  |  | | --- | --- | --- | |  | a. | 45Co5+ | |  | b. | 50Kr | |  | c. | 50V5+ | |  | d. | 41Kr5- | |  | e. | 50V5- |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | atomic theory of matter | Chemistry | early atomic theory | general chemistry | isotope | periodic table | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 1/23/2017 6:47 AM | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 106. Which of the following compounds is incorrectly named?   |  |  |  | | --- | --- | --- | |  | a. | Mg(OH)2 is magnesium dihydroxide | |  | b. | CaO is calcium oxide | |  | c. | NH4NO3 is ammonium nitrate | |  | d. | K3PO4 is potassium phosphate | |  | e. | MgSO3 is magnesium sulfite |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 2.8 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *KEYWORDS:* | chemical substance | Chemistry | early atomic theory | general chemistry | ionic compound | nomenclature of simple compound | | *OTHER:* | Conceptual | | *DATE CREATED:* | 3/4/2016 4:32 PM | | *DATE MODIFIED:* | 1/23/2017 6:47 AM | |