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| 1. **Why is CaO the symbol for calcium oxide instead of CAO?**   |  |  |  | | --- | --- | --- | |  | a. | both can be the symbols for calcium oxide | |  | b. | both are incorrect; the symbol is cao | |  | c. | a capital letter means a new symbol | |  | d. | both are incorrect as the symbol should be CaOx |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 2. **What is the meaning of the two (2) in ethyl alcohol, C2H5OH?**   |  |  |  | | --- | --- | --- | |  | a. | all alcohol molecules contain two carbon atoms | |  | b. | there are two carbon atoms per molecule of ethyl alcohol | |  | c. | carbon is diatomic | |  | d. | all of these are correct statements |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 3. **The symbols for elements with accepted names**   |  |  |  | | --- | --- | --- | |  | a. | consist of a single capital letter. | |  | b. | consist of a capital letter and a small letter. | |  | c. | consist of either a single capital letter or a capital letter and a small letter. | |  | d. | No answer is correct. |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 4. **A molecular formula**   |  |  |  | | --- | --- | --- | |  | a. | is represented using the symbols of the elements in the formula. | |  | b. | is represented using a system of circles that contain different symbols. | |  | c. | cannot be represented conveniently using symbols for the elements. | |  | d. | is represented using words rather than symbols. |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 5. **Which of the following uses the unit of "u" or “amu”?**   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | atomic weights of atoms | b. | relative masses of atoms | |  | c. | molecular weights of molecules | d. | more than one response is correct |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 6. **What is meant when the symbol C-12 (or 12C) is used?**   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | the carbon atom weighs 12 grams | b. | the carbon atom weighs 12 pounds | |  | c. | the carbon atom weighs 12 amu | d. | the melting point of carbon is 12°C |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 7. **Refer to a periodic table and tell how many helium atoms (He) would be needed to get close to the same mass as an average oxygen atom (O).**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | six | b. | four | c. | twelve | d. | one-fourth |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 8. **Determine the molecular weight of hydrogen peroxide, H2O2, in u (or amu).**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | 17.01 | b. | 18.02 | c. | 34.02 | d. | 33.01 |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 9. **Using whole numbers, determine the molecular weight of calcium hydroxide, Ca(OH)2.**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | 56 | b. | 57 | c. | 58 | d. | 74 |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 10. **The average relative mass of an ozone molecule is 48.0 u. An ozone molecule contains only oxygen atoms. What does this molecular weight indicate about the formula of the ozone molecule?**   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | It is monoatomic. | b. | It is diatomic. | |  | c. | It is triatomic. | d. | Impossible to determine |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 11. **Which of the following pairs are about equal in mass?**   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | proton and electron | b. | electron and neutron | |  | c. | proton and neutron | d. | nucleus and surrounding electrons |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 12. **Which of the following particles is the smallest?**   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | proton | b. | electron | |  | c. | neutron | d. | they are all the same size |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 13. **How many electrons are in a neutral atom of carbon-13 (13C)?**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | 6 | b. | 18 | c. | 12 | d. | no way to tell |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 14. **Which of the following carries a negative charge?**   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | a proton | b. | a neutron | |  | c. | an electron | d. | both proton and neutron |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 15. **Which of the following is located in the nucleus of an atom?**   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | protons | b. | neutrons | |  | c. | electrons | d. | protons and neutrons |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 16. **Atoms are neutral. How can they have no charge?**   |  |  |  | | --- | --- | --- | |  | a. | equal numbers of protons and neutrons | |  | b. | equal numbers of protons and electrons | |  | c. | equal numbers of neutrons and electrons | |  | d. | any charge has been drained out of the atom |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 17. **Isotopes differ from each other in what way?**   |  |  |  | | --- | --- | --- | |  | a. | They have different numbers of protons in the nucleus. | |  | b. | They have different numbers of neutrons in the nucleus. | |  | c. | They have different numbers of electrons outside the nucleus. | |  | d. | More than one response is correct. |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 18. **What is the reason that U-238 is different from U-235?**   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | three more electrons | b. | three more protons | |  | c. | three more neutrons | d. | there is no difference |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 19. **How many protons are found in the nucleus of a boron-11 (11B) atom?**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | 11 | b. | 6 | c. | 5 | d. | 4 |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 20. **How many neutrons are found in the nucleus of a boron-11 (11B) atom?**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | 11 | b. | 6 | c. | 5 | d. | 4 |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 21. **What is the mass number of a carbon-13 (13C) atom?**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | 13 | b. | 12 | c. | 6 | d. | 7 |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 22. **Naturally occurring neon (Ne) has the following isotopic composition (the mass of each isotope is given in parenthesis). Calculate the atomic weight of neon in u from these data:  neon-20, 90.92% (19.99 u); neon-21, 0.257% (20.99 u); neon-22, 8.82% (21.99 u)**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | 28.97 | b. | 37.62 | c. | 2017 | d. | 20.17 |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 23. **Naturally occurring lithium (Li) consists of only two isotopes, Li-6 (6.02 u) and Li-7 (7.02 u), where the isotopic masses are given in parentheses. Use the periodic table and determine which isotope is present in the larger percentage in the natural element.**   |  |  |  | | --- | --- | --- | |  | a. | Li-6 | |  | b. | Li-7 | |  | c. | each is present at 50% | |  | d. | cannot be determined from the information available |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 24. **What mass of arsenic (As) in grams contains the same number of atoms as 39.95 g of argon (Ar)?**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | 33.0 | b. | 74.92 | c. | 4.16 | d. | 149.84 |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 25. **The number of Cr atoms in a 26.0 g sample of chromium is x. How many atoms, expressed in terms of x, would be contained in 26.98 g of aluminum (Al)?**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | x | b. | x/2 | c. | 2x | d. | x+2 |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 26. **The mass of mercury (Hg), a liquid at room temperature, is 200.6 amu/mol. A 200.6 gram sample of mercury is heated until it boils. What is the mass of one mole of mercury vapor (gas)?**   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | <200.6 or it wouldn’t be a gas | b. | the same as Avogadro's number | |  | c. | the same as when it is a liquid | d. | none of the answers are correct |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 27. **The formula for dinitrogen monoxide is N2O. If a sample of the oxide was found to contain 0.0800 g of oxygen, how many grams of nitrogen would it contain?**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | 0.140 | b. | 0.280 | c. | 0.560 | d. | 0.0700 |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 28. **One Avogadro's number of iron (Fe) atoms would weigh \_\_\_\_\_ .**   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | 55.9 g. | b. | 6.02 × 1023 g. | |  | c. | 55.9 u. | d. | 6.02 × 10−23 g. |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 29. **How many atoms are contained in a sample of krypton, Kr, that weighs 8.38 g?**   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | one Avogadro's number | b. | one-tenth Avogadro's number | |  | c. | one | d. | one-tenth |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 30. **Which of the following has the largest mass?**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | 5.0 mol H2O | b. | 3.5 mol NH3 | c. | 8.0 mol C | d. | 6.0 mol C2H2 |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 31. **How many silicon atoms (Si) are contained in a 12.5 g sample of silicon?**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | 2.68 × 1023 | b. | 5.83 × 10−22 | c. | 1.35 × 1024 | d. | 1.71 × 1021 |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 32. **What is the number of hydrogen atoms in a 18.016 gram sample of water?**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | 2.000 | b. | 6.022 × 1023 | c. | 18.02 | d. | 1.204 × 1024 |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 33. **How many moles of oxygen atoms are in one mole of CO2?**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | 1 | b. | 2 | c. | 6.02 × 1023 | d. | 12.04 × 1023 |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 34. **How many hydrogen atoms are in 1.00 mole of NH3?**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | 3.00 | b. | 6.02 × 1023 | c. | 12.0 × 1023 | d. | 18.1 × 1023 |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 35. **How many moles of hydrogen molecules (H2) would be required to produce two moles of hydrogen peroxide (H2O2)?**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | 1 | b. | 2 | c. | 3 | d. | 4 |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 36. **Calculate the weight percentage of hydrogen in water.**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | 33.3 | b. | 66.7 | c. | 2.00 | d. | 11.1 |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 37. **What is the weight percentage of nitrogen in urea, CN2H4O?**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | 46.7 | b. | 30.4 | c. | 32.6 | d. | 16.3 |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 38. **How many carbon atoms are contained in 5.50 g of ethane, C2H6?**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | 2.75 × 10−22 | b. | 3.29 × 1024 | c. | 1.10 × 1023 | d. | 2.21 × 1023 |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 39. **Which element is approximately 65 percent of sulfuric acid by weight?**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | hydrogen | b. | sulfur | c. | oxygen | d. | any of these |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 40. **How many moles of N2O contain the same number of nitrogen atoms as 4.60 g of NO2?**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | 0.500 | b. | 0.0500 | c. | 0.100 | d. | 0.200 |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 41. **How many grams of iron (Fe) is contained in 15.8 g of Fe(OH)3?**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | 12.1 | b. | 8.26 | c. | 11.8 | d. | 5.21 |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 42. **The symbol for bromine is \_\_\_\_\_ .**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | B | b. | Br | c. | Be | d. | none of these |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 43. **The weight % of S in K2SO4 is \_\_\_\_\_ .**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | 14.2% | b. | 18.4% | c. | 54.4% | d. | 22.4% |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 44. **What is the number of moles of water in one liter of water if one gram of water takes up one milliliter of space?**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | 1 | b. | 18 | c. | 55.6 | d. | 1000 |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 45. **How many neutrons are in an atom that has a mass number of 75 and contains 35 protons?**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | 40 | b. | 35 | c. | 75 | d. | can’t tell |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 46. **Atoms that have the same atomic number but differ by mass number are called?**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | protons | b. | neutrons | c. | isotopes | d. | positrons |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 47. **If you have 3.011 × 1023 atoms of carbon, what would you expect its mass to be?**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | 12.01 g | b. | 6.005 g | c. | 3.003 g | d. | 1.000 g |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 48. **What is wrong with the following molecular formula: SOO (sulfur dioxide)?**   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | OSO is the correct form | b. | SO should be So | |  | c. | OO should be written as O2 | d. | OO should be written as O2 |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 49. **Determine the number of electrons and protons in the element Tc.**   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | 43 protons, 43 electrons | b. | 43 protons, 56 electrons | |  | c. | 56 protons, 43 electrons | d. | 99 protons, 43 electrons |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 50. **The system of atomic mass units is based on**   |  |  |  | | --- | --- | --- | |  | a. | assigning 12C as weighing exactly 12 u & comparing other elements to it. | |  | b. | measuring the true mass of each subatomic particle. | |  | c. | comparing the differences in protons and electrons. | |  | d. | viewing how atoms are affected by electromagnetic fields. |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 51. **How many moles of Na2Cr2O7 contain 14 moles of oxygen atoms?**   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | 2 mol Na2Cr2O7 | b. | 14 mol Na2Cr2O7 | |  | c. | 7 mol Na2Cr2O7 | d. | 1 mol Na2Cr2O7 |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 52. **An isotope of a given element has a mass number equal to twice the atomic number.  This neutral isotope contains twelve electrons.  This isotope is \_\_\_\_\_ .**   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | magnesium-12. | b. | magnesium-24. | |  | c. | chromium-24. | d. | chromium-12. |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 53. **Approximately, how many atoms of beryllium would be required to equal the mass of 10 atoms of aluminum?**   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | 3 atoms of beryllium | b. | 10 atoms of beryllium | |  | c. | 30 atoms of beryllium | d. | 4 atoms of beryllium |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 54. **If calcium carbonate found in limestone is 40.0% calcium, how many grams of calcium are in 485 g of calcium carbonate?**   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | 12.1 g of calcium | b. | 291 g of calcium | |  | c. | 19,400 g of calcium | d. | 194 g of calcium |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 55. **Which of the following correctly describes subatomic particles?             1. Mass:   < = *n*2. Magnitude of charge:   *n <* =**  **3. Location:   outside nucleus   ,  , inside nucleus     *n***   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | 1 only | b. | 2 only | c. | 3 only | d. | 1 and 2 |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 56. **Write the formula for a compound consisting of 3 sodium atoms, 1 phosphorus atom, and 4 oxygen atoms.**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | S3PO4 | b. | 3NaP4O | c. | Na3P2(O2) | d. | Na3PO4 |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 57. **Consider the representation shown below.  It should be classified as**   |  |  |  | | --- | --- | --- | |  | a. | an element consisting of 6 atoms. | |  | b. | a compound containing atoms of two elements. | |  | c. | a homogenous mixture of two elements. | |  | d. | a homogenous mixture of two compounds. |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 58. **A neutral isotope of an element contains 21 electrons and 24 neutrons.  What is the following representation for this nucleus?**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. |  | b. |  | c. |  | d. |  |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 59. **How many electrons are found around the species below?**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | -2 | b. | 0 | c. | 2 | d. | 4 |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 60. **What is the molar mass of Ba3(PO4)2?**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | 232.30 g/mol | b. | 327.27 g/mol | c. | 369.63 g/mol | d. | 601.92 g/mol |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 61.  **is the form of uranium used to make atomic bombs.  One atom of this isotope consists of \_\_\_.**   |  |  |  | | --- | --- | --- | |  | a. | 92 protons, 92 electrons, 92 neutrons | |  | b. | 92 protons, 143 electrons, 92 neutrons | |  | c. | 92 protons, 92 electrons. 143 neutrons | |  | d. | 143 protons, 143 electrons, 92 neutrons |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 62. **Oxalic acid is found in many plants, like spinach and black tea.  What is the mass of the carbon found in one mole of oxalic acid, H2C2O4?**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | 12.01 g of C | b. | 24.02 g of Cl | c. | 45.01 g of C | d. | 90.02 g of C |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 63. **You discover a new element which consists of two isotopes.  The first isotope, 243X (mass = 242.45 u)  comprises 40.000% of the total.  The second isotope, 248X (mass = 247.11 u) accounts for the rest.  What would be the average atomic mass for your new element?**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | 242.45 u | b. | 244.32 u | c. | 245.25 | d. | 247.11 |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 64. **Individuals, ages 19-70, should include at least 1000 mg of calcium in their daily diet.  What is the minimum number of one-gram calcium supplement tablets you would need to take each day to meet this requirement if a tablet is 40% by mass calcium?**   |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | a. | 1 | b. | 2 | c. | 3 | d. | 4 |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 65. **The symbols for all of the elements are derived from the Latin names.**   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *POINTS:* | 1 | | *QUESTION TYPE:* | True / False | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 66. **The symbols for all of the elements always begin with a capital letter.**   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *POINTS:* | 1 | | *QUESTION TYPE:* | True / False | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 67. **The first letter of the symbol for each of the elements is the first letter of its English name.**   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *POINTS:* | 1 | | *QUESTION TYPE:* | True / False | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 68. **The most accurate way to determine atomic mass is with a mass spectrometer.**   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *POINTS:* | 1 | | *QUESTION TYPE:* | True / False | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 69. **H2O2 contains equal parts by weight of hydrogen and oxygen.**   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *POINTS:* | 1 | | *QUESTION TYPE:* | True / False | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 70. **Electrons do not make an important contribution to the mass of an atom.**   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *POINTS:* | 1 | | *QUESTION TYPE:* | True / False | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 71. **The charge of the nucleus depends only on the atomic number.**   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *POINTS:* | 1 | | *QUESTION TYPE:* | True / False | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 72. **Isotopes of the same element always have the same number of neutrons.**   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *POINTS:* | 1 | | *QUESTION TYPE:* | True / False | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 73. **Isotopes of the same element always have the same atomic number.**   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *POINTS:* | 1 | | *QUESTION TYPE:* | True / False | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 74. **Isotopes of the same element always have the same atomic mass.**   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *POINTS:* | 1 | | *QUESTION TYPE:* | True / False | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 75. **A mole of copper contains the same number of atoms as a mole of zinc.**   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *POINTS:* | 1 | | *QUESTION TYPE:* | True / False | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 76. **One mole of an element would weigh the same as a mole of an isotope of the same element.**   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *POINTS:* | 1 | | *QUESTION TYPE:* | True / False | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 77. **One mole of silver would contain the same number of atoms as a mole of gold.**   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *POINTS:* | 1 | | *QUESTION TYPE:* | True / False | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 78. **One mole of an element would weigh the same as a mole of an isotope of the same element.**   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *POINTS:* | 1 | | *QUESTION TYPE:* | True / False | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 79. **One mole of H2O contains 2.0 grams of hydrogen.**   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *POINTS:* | 1 | | *QUESTION TYPE:* | True / False | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 80. **One mole of O3 weighs 16 grams.**   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *POINTS:* | 1 | | *QUESTION TYPE:* | True / False | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 81. **The pure substance, water, contains both hydrogen molecules and oxygen molecules.**   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *POINTS:* | 1 | | *QUESTION TYPE:* | True / False | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 82. **A diet is planned for a trip on a space ship and is lacking in milk, but is rich in turnips and broccoli. Such a diet could provide a sufficient amount of calcium for adults.**   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *POINTS:* | 1 | | *QUESTION TYPE:* | True / False | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 83. **Calcium supplements can be taken in 1,000 mg increments.**   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *POINTS:* | 1 | | *QUESTION TYPE:* | True / False | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 84. **Protons and neutrons have approximately the same mass.**   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *POINTS:* | 1 | | *QUESTION TYPE:* | True / False | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 85. **Neutral isotopes of the same element have the same number of electrons.**   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *POINTS:* | 1 | | *QUESTION TYPE:* | True / False | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 86. **An isotope of gallium consisting of 31 protons and 37 neutrons can be represented using the symbol shown below.**   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *POINTS:* | 1 | | *QUESTION TYPE:* | True / False | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 87. **The atomic mass number is a whole number and indicates a specific isotope of an element.**   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *POINTS:* | 1 | | *QUESTION TYPE:* | True / False | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 88. **In naturally occurring samples, all elements exist as a mixture of isotopes.**   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *POINTS:* | 1 | | *QUESTION TYPE:* | True / False | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 89. **One mole of any substance will contain one Avogadro’s number of atoms of that substance.**   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *POINTS:* | 1 | | *QUESTION TYPE:* | True / False | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 90. **A scanning tunneling microscope (STM) relies on a very strong light source to help see atoms.**   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | False | | *POINTS:* | 1 | | *QUESTION TYPE:* | True / False | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 91. **An MRI instrument cause the hydrogens in your body to line up because they are exposed to a very strong magnetic field.**   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *POINTS:* | 1 | | *QUESTION TYPE:* | True / False | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 3/4/2016 3:37 PM | | *DATE MODIFIED:* | 3/4/2016 3:37 PM | |

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| 92. ​  **​**  **The \_\_\_\_\_ \_\_\_\_\_ of an atom is the number equal to the number of protons in the nucleus of an atom and is represented by Z.**   |  |  |  | | --- | --- | --- | |  | a. | ​neutron number | |  | b. | ​mass number | |  | c. | ​mass number | |  | d. | ​atomic number |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 10/21/2016 12:57 AM | | *DATE MODIFIED:* | 10/21/2016 12:59 AM | |

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| 93. **​Which of the following units is the relative mass of a molecule expressed in atomic mass units and is calculated by adding together the atomic weights of the atoms in the molecule?**   |  |  |  | | --- | --- | --- | |  | a. | ​Atomic number | |  | b. | ​Mass number | |  | c. | ​Mass number | |  | d. | ​Atomic weight |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 10/21/2016 12:59 AM | | *DATE MODIFIED:* | 10/21/2016 1:05 AM | |

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| 94. **​Why are the atomic weights of elements defined as the relative masses of average atoms of the elements?**   |  |  | | --- | --- | | *ANSWER:* | ​The mass number of an isotope is the sum of the number of protons and neutrons in the nucleus of the atoms of the isotope. Also, both protons and neutrons have masses of 1 u. Since the masses of electrons are quite small, the atomic weights of isotopes are almost equal to their mass numbers. Therefore, the atomic weights of elements can be defined as the relative masses of average atoms of the elements. | | *POINTS:* | 1 | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 10/21/2016 1:01 AM | | *DATE MODIFIED:* | 10/21/2016 1:02 AM | |

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| 95. ​  **Which of the following units can be used to collect a sample of atoms of one element with a mass in grams equal to the atomic weight of another element?**  ​   |  |  |  | | --- | --- | --- | |  | a. | ​Molecular weight | |  | b. | ​Avogadro’s number | |  | c. | ​Atomic number | |  | d. | ​Atomic mass |  |  |  | | --- | --- | | *ANSWER:* | b | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 10/21/2016 1:02 AM | | *DATE MODIFIED:* | 10/21/2016 1:04 AM | |

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| 96. ​**How many H atoms are there in 6.02 × 1023 H2O molecules?**   |  |  |  | | --- | --- | --- | |  | a. | ​12.04 × 1023 | |  | b. | ​12.04 × 1046 | |  | c. | ​6.02 × 1023 | |  | d. | ​6.02 × 1023 |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *DATE CREATED:* | 10/21/2016 1:05 AM | | *DATE MODIFIED:* | 10/21/2016 1:07 AM | |