**General Chemistry Midterm Answer Sheet – Remote Version**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period: \_\_\_\_\_\_\_\_\_\_\_\_\_

Instructions:

You have exactly 50 minutes to do this quiz and return it by email. Since it will be posted at 2:05 pm, it will need to be in my email inbox by 2:55 pm. Some rules about this quiz:

* If I don’t receive your email by 2:55 pm, you will not receive credit for this quiz.
* You may submit your answers either by writing them all in a Word document that you attach to your email or by writing them in the body of the email. Please make sure your answers are legible if you write them by hand.
* I expect that you will take this “closed book.” Obviously I can’t enforce this, but I trust you all to do the right thing.

Good luck!

1. How many electrons does oxygen-16 have?
2. 8
3. 16.999
4. 16
5. 24
6. How many neutrons are present in plutonium-245?
7. 94
8. 150
9. 151
10. 244
11. What is an isotope?
12. It is one of the forms of an element, differing from the others by the number of neutrons.
13. It is one of the forms of an element, differing from the others by atomic mass.
14. It is one of the forms of an element, differing from the others by the number of protons.
15. More than one of the above is correct.
16. What is a line spectrum?
17. The spectrum of sunlight.
18. A spectrum that consists only of certain energies of light.
19. A pattern of light given off by a Bunsen burner.
20. A set of orbitals that are given off by an element.
21. What is an orbital?
22. It’s another word for an electron
23. It’s where the electrons exist in the plum pudding model of the atom.
24. It’s where neutrons can be found in the atom.
25. It’s where electrons can be found in the atom.
26. What do we mean when we say that an electron is in an “excited state”?
27. It is in a low energy orbital.
28. It is in a high energy orbital.
29. It is jumping between orbitals.
30. It is giving off light.
31. What is spectroscopy?
32. It’s a way of heating elements.
33. It’s how you can tell if an atom has electrons.
34. It’s a way of identifying an unknown element from its protons.
35. It’s a way of identifying an unknown element from the light it emits.
36. Which of the following is characteristic of the Bohr model of the atom?
37. Orbitals near the nucleus have lower energy than those farther away.
38. Electrons can be found in circular orbits around the nucleus.
39. The energies of electrons can be determined by the variable n.
40. All of the above.
41. Which of the following is characteristic of the quantum model of the atom?
42. Electrons are treated as waves.
43. Electrons can be found in circular orbits.
44. Orbitals can hold up to six electrons at a time.
45. None of the above is true of the quantum model of the atom.
46. What element is represented by the electron configuration 1s2 2s2 2p6 3s2 3p6 4s2 3d10 4p6 5s2 4d1?
47. Scandium (Sc)
48. Yttrium (Y)
49. Lanthanum (La)
50. This doesn’t represent any element because it is not a valid electron configuration.
51. Which of the following is the best definition of the “scientific method”?
52. It is a method that’s used when graphing scientific data.
53. It’s a systematic stepwise method for approaching scientific problems.
54. It’s a systematic method for determining the independent variable in an experiment.
55. It’s an approach to doing science that involves a “guess and check” way of solving problems.
56. What is a hypothesis?
57. It’s a statement in which a prediction is made about what will happen when the independent variable in an experiment is changed.
58. It’s a statement in which a prediction is made about what will happen when the dependent variable in an experiment is changed.
59. It’s a statement that explains the purpose of an experiment.
60. It’s a summary of the data collected in an experiment.
61. Which of the following pieces of lab equipment can be used to accurately measure the volume of a liquid?
62. Graduated cylinder
63. Beaker
64. Erlenmeyer flask
65. Balance
66. What piece of lab equipment should *always* be worn by students?
67. Beaker
68. Safety hat
69. Goggles
70. Rubber gloves
71. Which of the following is NOT an SI base unit?
72. Meter
73. Second
74. Yard
75. All of the above are SI base units.
76. What does the prefix “milli-“ mean?
77. One thousandth (0.001)
78. One millionth (0.000001)
79. One thousand (1,000)
80. One million (1,000,000)
81. What is the density of a ball that has a volume of 95 mL and a mass of 34 grams?
82. 0.036 g/mL
83. 0.36 g/mL
84. 0.28 g/mL
85. 2.8 g/mL
86. Which of the following is a good definition for accuracy?
87. It’s a measure of how often a measurement can be repeated.
88. It’s a measure of how close a measurement is to the actual value of the thing being measured.
89. It’s a measure of the precision of the measurement that’s being taken.
90. It indicates how many significant figures should be used when recording a measurement.
91. Which of these numbers has three significant figures?
92. 0.01
93. 0.010
94. 0.0010
95. 0.00100
96. Which of the following is not a characteristic of a good graph?
97. The data is graphed using a best fit line.
98. The independent variable is shown on the x-axis.
99. The best fit line should never pass through the origin.
100. Both axes are labeled
101. Which of these is a homogeneous mixture?
102. My Uncle Merle
103. A bottle of Kool Aid
104. An ice-cold, refreshing can of Faygo brand diet cola
105. A mixture of rocks and water.
106. Which of these results in a chemical change?
107. Putting a hot dog in a blender
108. Putting a hot dog in a refrigerator
109. Putting a hot dog in a blast furnace
110. Soaking a hot dog in salt water until it shrivels up.
111. Which of these is an extensive property of my nephew’s hamster?
112. It does not rust when put into salt water.
113. It has a mass of 205 grams.
114. It is flammable (though this is *not* something we know from experience!)
115. All of the above are extensive properties of the hamster.
116. John Dalton had an atomic theory with five major points. Which of these is not a characteristic of his model of the atom?
117. Atoms are spherical
118. Atoms obey the law of conservation of mass
119. Atoms are indestructible
120. Atoms are very small
121. Which of these is not true of the plum pudding model of the atom?
122. The positive charge in the atom has negatively-charged electrons embedded in it.
123. Electrons can be easily pulled from the atom, while the positively-charged portion of the atoms cannot.
124. There is a positively-charged nucleus in the middle of the atom.
125. Electrons have negative charge, as shown by Thomson’s cathode ray experiment.