GROUP QUIZ UNIT 03

NAMES

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Answer Key:

1. ­\_\_\_\_\_ 16.

2. ­\_\_\_\_\_

3. ­\_\_\_\_\_ ­

4. ­\_\_\_\_\_

5. ­\_\_\_\_ 17.

6. ­\_\_\_\_

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Element** | **Z** | **A** | **p** | **n** | **e** | **Isotopic symbol** |
| gold |  | 198 |  |  |  |  |
|  | 29 | 64 |  |  |  |  |
|  |  | 11 |  | 6 |  |  |
|  | 35 |  |  |  |  | Br-1 |

7. ­\_\_\_\_\_

8. ­\_\_\_\_\_

9. ­\_\_\_\_\_

10. ­\_\_\_\_\_ 18.

11. ­\_\_\_\_\_

12. ­\_\_\_\_\_

13. ­\_\_\_\_\_

14. ­\_\_\_\_\_

15. ­\_\_\_\_\_

# Unit 3 GROUP QUIZ

***Multiple Choice : Write the best answer to each question in the blank.*** (2 points each)

\_\_\_1. Who did the cathode ray tube experiment to discover the electron and its negative charge?

a. Atomos b. Dalton c. Democritus d. Thomson

\_\_\_2. What is an isotope?

1. Elements with the same number of protons but different numbers of neutrons.
2. Atoms of the same element with a different average atomic mass.
3. Elements with the same number of neutrons but different number of electrons.
4. An atom that has gained an electron

\_\_\_3. Who used quantum mechanics to mathematically explain the 3D shape where an electron can be found in an atom?

1. Bohr b. Schrödinger c. Dalton d. Rutherford

\_\_\_4. Which of the following statement below is NOT one of the atomic theory postulates proposed by Dalton?

1. Elements are made up of atoms that cannot be further broken down.
2. Atoms are neither created nor destroyed in a chemical reaction.
3. Individual atoms can be seen with a microscope.
4. All atoms of given element weigh the same; different elements weigh different amounts

\_\_\_5. Which of the following statements below about subatomic particles is CORRECT?

1. Protons are positively charged and are the lightest particles.
2. Electrons are negatively charged and are the heaviest particles.
3. The mass of a neutron nearly equals that mass of a proton.
4. Electrons, protons and neutrons all have the same mass.

\_\_\_6. The following particle contains 9 protons, 10 neutrons, and 10 electrons. What is it?

1. Fluorine
2. Fluoride ion
3. Neon
4. Neon ion

\_\_\_7. Rutherford bombarded alpha particles (+) with gold foil and discovered that the atom\_\_\_\_\_\_\_\_\_\_\_\_

1. contains protons orbiting the nucleus.
2. is like a plum pudding, where the pudding is positive and the plums are negatively charged electrons.
3. is mostly empty space with electrons and a densely charged nucleus.
4. is mostly occupied space filled with neutrons and electrons.

\_\_\_8. The following isotope $\frac{81}{35}Br$ contains:

1. 46 protons, 35 neutrons, 46 electrons c. 81 protons, 35 neutrons, 81 electrons
2. 35 protons, 46 neutrons, 35 electrons d. 35 protons, 81 neutrons, 36 electrons

\_\_\_9. All atoms are \_\_\_\_\_\_.

1. positively charged, with the number of protons exceeding the number of electrons
2. negatively charged, with the number of electrons exceeding the number of protons
3. neutral, with the number of protons equaling the number of electrons
4. neutral, with the number of protons equaling the number of electrons equaling the number of neutrons

\_\_\_10. All atoms to the same element have the same \_\_\_\_\_.

1. number of neutrons b. number of protons

c. mass numbers d. mass

\_\_\_11. How many electrons does the following have: $\frac{88}{38}Sr^{+2}$ ?

 a. 88

 b. 40

 c. 38

 d. 36

\_\_\_12. In which of the following is the number of neutrons correctly represented?

 a. As has 108 neutrons

 b. Mg has 24 neutrons

 c. Au has 79 neutrons

 d. U has 146 neutrons

\_\_\_ 13. Using the periodic table, determine the number of neutrons in 206Pb.

1. 82 b. 124 c. 206 d. 288

\_\_\_14. An atom of an element with atomic number 50 and mass number 120 contains

1. 50 protons, 50 electrons, and 70 neutrons
2. 70 electrons, 509 protons, and 50 neutrons
3. 120 neutrons, 50 protons, and 70 electrons
4. 70 neutrons, 70 protons, and 50 electrons

\_\_\_15. An atom that has gained or lost electrons and carries a net electrical charge is called an \_\_\_\_.

1. isotope
2. element
3. ion
4. electron

***Calculations:*** SHOW ALL WORK FOR CREDIT

*16.* There are 3 naturally occurring isotopes of the element Z. The relative abundance of each is: 40Z = 64.25%, 41Z = 30.93%, 42Z = 4.82%

*Determine the average atomic mass of element Z.* (15 points)

17. Calculate the average atomic mass for carbon with the given information (15 points):

|  |  |  |
| --- | --- | --- |
| Isotope name | Isotope mass (amu) | Relative abundance |
| Carbon- 12 | 11.99 | 90.45% |
| Carbon- 13 | 13.01 | 6.82% |
| Carbon- 14 | 14.20 | 2.73% |

 18. Fill in the chart: (2 point each)

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