**Topics – Test 3 Makeup**

1) List each of Dalton’s five laws and indicate whether or not they are true: (2 pts each law, 1 pt for accurately indicating whether it is true):

2) Fill out the blanks in this table: (1 pt each)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Element** | **Protons** | **Neutrons** | **Electrons** | **Atomic mass**  **(amu)** | **Atomic number** |
| Na |  | 13 |  |  |  |
|  | 106 |  |  | 274 |  |
|  |  |  | 82 | 209 |  |
|  |  | 105 |  | 177 |  |
|  |  | 100 |  |  | 70 |
| Zr |  |  |  | 91 |  |

3) Define the term “line spectrum”. (2 pt)

4) Element X has two isotopes: X-114 has a mass of 114 amu and an abundance of 84% X-1167 has a mass of 117 amu and an abundance of 16%. Given this information, what is the average atomic mass of element X? (5 pt)

6) Explain what spectroscopy is and how it is used to identify unknown elements. (6 pt)

7) List three general properties of nonmetals. (6 pt)