

Name : _____ Date : _____

Score : _____



Electron Configuration



Answers

1. Determine what elements are denoted by the following configurations.

- | | |
|---------------------------------------------------|------------------|
| i. $1s^2 2s^2 2p^6 3s^2 3p^4$ | <u>Sulfur</u> |
| ii. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^5$ | <u>Manganese</u> |
| iii. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6$ | <u>Krypton</u> |
| iv. $[\text{Kr}] 5s^2 4d^{10} 5p^3$ | <u>Antimony</u> |
| v. $[\text{Ne}] 3s^2 3p^1$ | <u>Aluminum</u> |

2. Write the full electron configuration (ex., $1s^2 2s^1$) of the following elements?

- | | |
|---------------|------------------------------------------------------------------------------------------------------------|
| i. Nitrogen | <u>$1s^2 2s^2 2p^3$</u> |
| ii. Silicon | <u>$1s^2 2s^2 2p^6 3s^2 3p^2$</u> |
| iii. Calcium | <u>$1s^2 2s^2 2p^6 3s^2 3p^6 4s^2$</u> |
| iv. Strontium | <u>$1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2$</u> |
| v. Bismuth | <u>$1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^6 6s^2 4f^{14} 5d^{10} 6p^3$</u> |

3. Write the abbreviated electron configuration (ex., $[\text{He}] 2s^1$) of the following element?

- | | |
|---------------|-----------------------------------------------------------|
| i. Fluorine | <u>$[\text{He}] 2s^2 2p^5$</u> |
| ii. Magnesium | <u>$[\text{Ne}] 3s^2$</u> |
| iii. Selenium | <u>$[\text{Ar}] 4s^2 3d^{10} 4p^4$</u> |
| iv. Rubidium | <u>$[\text{Kr}] 5s^1$</u> |
| v. Lead | <u>$[\text{Xe}] 6s^2 4f^{14} 5d^{10} 6p^2$</u> |

4. If each orbital can hold a maximum of two electrons, how many can each of the following hold?

- | | | | | |
|----------------|-----------------|-------------------|------------------|-----------------|
| i. 2s <u>2</u> | ii. 5p <u>6</u> | iii. 4f <u>14</u> | iv. 3d <u>10</u> | v. 4d <u>10</u> |
|----------------|-----------------|-------------------|------------------|-----------------|

5. What is the shape of an s orbital? Spherical

6. What is the shape of a p orbital? Dumb-bell shaped