Electron Configuration Worksheet

W 311

Write the unabbreviated electron configurations of the following elements:

1) copper_____

2) iodine _____

3) potassium _____

4) bismuth _____

5) zirconium _____

Write the abbreviated electron configurations of the following elements:

6) iridium _____

7) chlorine _____

8) nobelium _____

9) caesium _____

10) magnesium _____

The following electron configurations belong to which elements:

11) $1s^2 2s^2 2p^6 3s^1$ _____

12) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^6$ _____

13) [Kr] $5s^2 4d^{10}$ _____

14) [Xe] $6s^2 4f^{14} 5d^{10} 6p^2$ _____

15) [Rn] $7s^2 5f^{14} 6d^4$ _____

Determine if the following electron configurations are correct:

16) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 4d^{10} 4p^6 5s^1$ _____

17) $1s^2 2s^2 2p^6 3s^3$ _____

18) [Rn] $7s^2 5f^9 6d^2$ _____

19) [Ar] $5s^2 4d^{10} 5p^5$ _____

20) [Xe] $6s^2 4f^{10}$ _____

Write the unabbreviated electron configurations of the following elements:

1) copper **$1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^9$**

2) iodine **$1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^5$**

3) potassium **$1s^2 2s^2 2p^6 3s^2 3p^6 4s^1$**

4) bismuth **$1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^{10} 5p^6 6s^2 4f^{14} 5d^{10} 6p^3$**

5) zirconium **$1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^2$**

Write the abbreviated electron configurations of the following elements:

6) iridium **[Xe] $6s^2 4f^{14} 5d^7$**

7) chlorine **[Ne] $3s^2 3p^5$**

8) nobelium **[Rn] $7s^2 5f^{14}$**

9) caesium **[Xe] $6s^1$**

10) magnesium **[Ne] $3s^2$**

The following electron configurations belong to which elements:

21) $1s^2 2s^2 2p^6 3s^1$ **sodium**

22) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6 5s^2 4d^6$ **ruthenium**

23) [Kr] $5s^2 4d^{10}$ **cadmium**

24) [Xe] $6s^2 4f^{14} 5d^{10} 6p^2$ **lead**

25) [Rn] $7s^2 5f^{14} 6d^4$ **seaborgium**

Determine if the following electron configurations are correct:

26) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2$ **$4d^{10}$** $4p^6 5s^1$ **no, it should be $3d^{10}$**

27) $1s^2 2s^2 2p^6$ **$3s^3$** **no, there can only be 2 electrons in an s-orbital**

28) [Rn] $7s^2$ **$5f^9$** $6d^2$ **no, 5f shell must be filled before the 6d shell**

29) **[Ar]** $5s^2 4d^{10} 5p^5$ **no, the short-cut should be [Kr], not [Ar]**

30) [Xe] $6s^2 4f^{10}$ **yes**