

Name : Date :

Score :

Electron Configuration

1. Determine the possible elements that may represent the following electron configurations.

i. $1s^2 2s^2$ _____

ii. $1s^2 2s^2 2p^6 3s^2 3p^2$ _____

iii. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^7$ _____

iv. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^2$ _____

v. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6$ _____

vi. $[\text{He}] 2s^2 2p^2$ _____

vii. $[\text{Ne}] 3s^2 3p^1$ _____

viii. $[\text{Ne}] 3s^2 3p^6$ _____

ix. $[\text{Ar}] 4s^2 3d^2$ _____

x. $[\text{Kr}] 5s^2$ _____

2. Answer the following questions

i. How many p orbitals can there be in an energy level? _____

ii. Which is the lowest energy level with an s orbital? _____

iii. Which is the lowest energy level that can have a p orbital? _____

iv. How many d orbitals can there be in an energy level? _____

v. How many d electrons can there be in an energy level? _____

vi. Which is the lowest energy level having d orbitals? _____

vii. How many f electrons can there be in an energy level? _____

viii. Which is the lowest energy level having f orbitals? _____

ix. How many f orbitals can there be in an energy level? _____

x. How many energy levels are found in a neutral atom of calcium? _____

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Electron Configuration

Answers

1. Determine the possible elements that may represent the following electron configurations.

i. $1s^2 2s^2$ Beryllium

ii. $1s^2 2s^2 2p^6 3s^2 3p^2$ Silicon

iii. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^7$ Cobalt

iv. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^2$ Germanium

v. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^{10} 4p^6$ Krypton

vi. $[\text{He}] 2s^2 2p^2$ Carbon

vii. $[\text{Ne}] 3s^2 3p^1$ Aluminum

viii. $[\text{Ne}] 3s^2 3p^6$ Argon

ix. $[\text{Ar}] 4s^2 3d^2$ Titanium

x. $[\text{Kr}] 5s^2$ Strontium

2. Answer the following questions

i. How many p orbitals can there be in an energy level? Three

ii. Which is the lowest energy level with an s orbital? 1

iii. Which is the lowest energy level that can have a p orbital? 2

iv. How many d orbitals can there be in an energy level? Five

v. How many d electrons can there be in an energy level? Ten

vi. Which is the lowest energy level having d orbitals? 3

vii. How many f electrons can there be in an energy level? 14

viii. Which is the lowest energy level having f orbitals? 4

ix. How many f orbitals can there be in an energy level? Seven

x. How many energy levels are found in a neutral atom of calcium? Four