

Electronic configurations, Auf-bau principle, Pauli principle, Hunds rule

1. An element has 2 electrons in K shell, 8 electrons in L shell, 13 electrons in M shell and one electron in N shell. The element is (M-2004)
- 1) Cr 2) Fe 3) V 4) Ti
2. How many 'd' electrons are present in Cr^{2+} ion? (M-2002)
- 1) 5 2) 2 3) 6 4) 3
3. Which of the following explains the sequence of filling electrons in different shells? (BHU 99)
- 1) Octet rule 2) Hund's rule
3) Aufbau's rule 4) All the above
4. If the nitrogen atom has electronic configuration $1s^7$, it would have energy lower than that of normal ground state configuration $1s^2 2s^2 2p^3$, because the electrons would be closer to the nucleus, Yet is not observed because it violates (M2002)
- 1) Uncertainty principle 2) Hund's rule
3) Pauli principle 4) Bohr's stationary orbits
5. Which of the following elements has least number of electrons in its "M" shell? (E-2004)
- 1) K 2) Mn 3) Ni 4) Sc
6. The atomic number (Z) of an element is 25. In its ground state, how many electrons are present in "N" shell? (M - 2001)
- 1) 13 2) 2 3) 15 4) 3

7. The atomic number of an element is 35. What is the total number of electrons present in all the p-orbitals of the ground state atom of that element? (M - 2003)
- 1) 6 2) 11 3) 17 4) 23
8. What is the maximum number of electrons in an atom that can have $n=4, m=+1$ (PMT2007)
- 1) 6 2) 2 3) 16 4) 7
9. A metallic ion M has an electronic configuration 2, 8, 14 and the ionic weight is 56amu. The number of neutrons in its nucleus is (DPMT2009)
- 1) 30 2) 32 3) 34 4) 42
10. Which one of the following pairs of ions has the same electronic configuration (M-2001)
- 1) $\text{Cr}^{3+}, \text{Fe}^{3+}$ 2) $\text{Fe}^{3+}, \text{Mn}^{2+}$ 3) $\text{Fe}^{3+}, \text{Co}^{3+}$ 4) $\text{Sc}^{3+}, \text{Cr}^{3+}$
11. For principal quantum number $n=4$ the number of orbitals having $l=3$ is (AFMC2009)
- 1) 3 2) 7 3) 5 4) 9

KEY

- 1) 1 2) 2 3) 3 4) 3 5) 1 6) 2 7) 3 8) 1 9) 2 10) 2
- 11) 2