



Quantum number, Electronic configuration and Shape of orbitals

1. Be's 4th electron will have four quantum numbers

	n	l	m	s
(a)	1	0	0	+1/2
(b)	1	1	+1	+1/2
(c)	2	0	0	-1/2
(d)	2	1	0	+1/2

2. The quantum number which specifies the location of an electron as well as energy is

- (a) Principal quantum number
(b) Azimuthal quantum number
(c) Spin quantum number
(d) Magnetic quantum number

3. The shape of an orbital is given by the quantum number

- (a) n (b) l
(c) m (d) s

4. In a given atom no two electrons can have the same values for all the four quantum numbers. This is called

- (a) Hund's rule
(b) Aufbau's principle
(c) Uncertainty principle
(d) Pauli's exclusion principle

5. Nitrogen has the electronic configuration $1s^2, 2s^2 2p_x^1 2p_y^1 2p_z^1$ and

not $1s^2, 2s^2 2p_x^2 2p_y^1 2p_z^0$ which is determined by

- (a) Aufbau's principle
(b) Pauli's exclusion principle
(c) Hund's rule
(d) Uncertainty principle

6. Which one of the following configuration represents a noble gas

- (a) $1s^2, 2s^2 2p^6, 3s^2$
(b) $1s^2, 2s^2 2p^6, 3s^1$
(c) $1s^2, 2s^2 2p^6$
(d) $1s^2, 2s^2 sp^6, 3s^2 3p^6, 4s^2$

7. The electronic configuration of silver atom in ground state is

- (a) $[Kr] 3d^{10} 4s^1$
(b) $[Xe] 4f^{14} 5d^{10} 6s^1$
(c) $[Kr] 4d^{10} 5s^1$
(d) $[Kr] 4d^9 5s^2$

8. Principal, azimuthal and magnetic quantum numbers are respectively related to

- (a) Size, shape and orientation
(b) Shape, size and orientation
(c) Size, orientation and shape
(d) None of the above

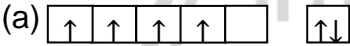
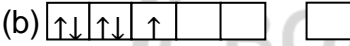
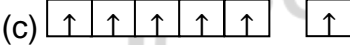
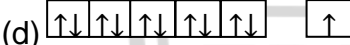
9. Correct set of four quantum numbers for valence electron of rubidium ($Z = 37$) is

- (a) $5, 0, 0, +\frac{1}{2}$ (b) $5, 1, 0, +\frac{1}{2}$



- (c) $5, 1, 1, +\frac{1}{2}$ (d) $6, 0, 0, +\frac{1}{2}$
10. The correct ground state electronic configuration of chromium atom is
 (a) $[Ar]3d^5 4s^1$ (b) $[Ar]3d^4 4s^2$
 (c) $[Ar]3d^6 4s^0$ (d) $[Ar]4d^5 4s^1$
11. $2p$ orbitals have
 (a) $n = 1, l = 2$ (b) $n = 1, l = 0$
 (c) $n = 2, l = 1$ (d) $n = 2, l = 0$
12. Electronic configuration of H^- is
 (a) $1s^0$ (b) $1s^1$
 (c) $1s^2$ (d) $1s^1 2s^1$
13. The quantum numbers for the outermost electron of an element are given below as $n = 2, l = 0, m = 0, s = +\frac{1}{2}$. The atom is
 (a) Lithium (b) Beryllium
 (c) Hydrogen (d) Boron
14. Principal quantum number of an atom represents
 (a) Size of the orbital
 (b) Spin angular momentum
 (c) Orbital angular momentum
 (d) Space orientation of the orbital
15. An element has the electronic configuration $1s^2, 2s^2 2p^6, 3s^2 3p^2$. Its valency electrons are
 (a) 6 (b) 2
- (c) 3 (d) 4
16. The magnetic quantum number specifies
 (a) Size of orbitals
 (b) Shape of orbitals
 (c) Orientation of orbitals
 (d) Nuclear stability
17. Which of the following sets of quantum numbers represent an impossible arrangement
- | n | l | m | m_s |
|-------|-----|-----|------------------|
| (a) 3 | 2 | -2 | $(+)\frac{1}{2}$ |
| (b) 4 | 0 | 0 | $(-)\frac{1}{2}$ |
| (c) 3 | 2 | -3 | $(+)\frac{1}{2}$ |
| (d) 5 | 3 | 0 | $(-)\frac{1}{2}$ |
18. If $n = 3$, then the value of ' l ' which is incorrect
 (a) 0 (b) 1
 (c) 2 (d) 3
19. Which orbital is dumb-bell shaped
 (a) s -orbital (b) p -orbital
 (c) d -orbital (d) f -orbital
20. The total number of unpaired electrons in d -orbitals of atoms of element of atomic number 29 is
 (a) 10 (b) 1



- (c) 0 (d) 5
21. The shape of $2p$ orbital is
 (a) Spherical (b) Ellipsoidal
 (c) Dumb-bell (d) Pyramidal
22. The magnetic quantum number for an electron when the value of principal quantum number is 2 can have
 (a) 3 values (b) 2 values
 (c) 9 values (d) 6 values
23. Which one is the correct outer configuration of chromium
 (a) 
 (b) 
 (c) 
 (d) 
24. The following has zero valency
 (a) Sodium (b) Beryllium
 (c) Aluminium (d) Krypton
25. The number of electrons in the valence shell of calcium is
 (a) 6 (b) 8
 (c) 2 (d) 4
26. The valence electron in the carbon atom are
 (a) 0 (b) 2
 (c) 4 (d) 6
27. For the dumb-bell shaped orbital, the value of l is
 (a) 3 (b) 1
 (c) 0 (d) 2
28. Chromium has the electronic configuration $4s^1 3d^5$ rather than $4s^2 3d^4$ because
 (a) $4s$ and $3d$ have the same energy
 (b) $4s$ has a higher energy than $3d$
 (c) $4s^1$ is more stable than $4s^2$
 (d) $4s^1 3d^5$ half-filled is more stable than $4s^2 3d^4$
29. The electronic configuration of calcium ion (Ca^{2+}) is
 (a) $1s^2, 2s^2 2p^6, 3s^2 3p^6, 4s^2$
 (b) $1s^2, 2s^2 sp^6, 3s^2 3p^6, 4s^1$
 (c) $1s^2, 2s^2 2p^6, 3s^2 3p^6 3d^2$
 (d) $1s^2, 2s^2 2p^6, 3s^2 3p^6, 4s^0$
30. The structure of external most shell of inert gases is
 (a) $s^2 p^3$ (b) $s^2 p^6$
 (c) $s^1 p^2$ (d) $d^{10} s^2$

