IV. Multiple Choice Questions

Question 1. Cathode rays are deflected by
(a) electric field only
(b) electric and magnetic field
(c) magnetic field only
(d) none of these

Question 2. In a sodium atom (atomic number = 11 and mass number = 23) and the number of neutrons is
(a) equal to the number of protons
(b) less than the number of protons
(c) greater than the number of protons
(d) none of these

Question 3. The Balmer series in the spectrum of hydrogen atom falls in
(a) ultraviolet region
(b) visible region
(c) infrared region
(d) none of these

Question 4. The idea of stationary orbits was first given by
(a) Rutherford
(b) J.J. Thomson
(c) Niels Bohr
(d) Max Planck

Question 5. de Broglie equation is

$(a)\ \lambda = \frac{h}{mv}$ $(b)\ \lambda = \frac{hv}{m}$ $(c)\ \lambda = \frac{mv}{h}$ $(d)\ \lambda = hmv$

Question 6. The orbital with n = 3 and l = 2 is ,
(a) 3s (b) 3p (c) 3d (d) 3j

Question 7. The outermost electronic configuration of manganese (at. no. = 25) is
(a) $3d^5\ 4s^2$
(b) $3d^6\ 4s^1$
(c) $3d^7\ 4s^0$
(d) $3d^6\ 4s^2$

Question 8. The energy needed to remove a single electron (most loosely bound) from an isolated - gaseous atom is called
(a) ionisation energy
(b) electronegativity
(c) kinetic energy
(d) electron affinity

Question 9. The maximum number of electrons in a sub-shell is given by the equation
(a) n^2 (b) $2n^2$ (c) 2l - 1 (d) 2l + 1

Question 10. If the value of azimuthal quantum number is 2, what will be the values for magnetic quantum number?
(a) 2 (b) 3 (c) 4 (d) 5

Answer:
1. (b)
2. (c)
3. (b)
4. (c)
5. (a)
6. (c)
7. (a)
8. (a)
9. (d)
10. (d)

V. Hots Questions

Question 1. Giue flic name and atomic number of the inert gas atom in which the total number of d-electrons is equal to the difference between the numbers of total p and total s-electrons.
Answer: Electronic configuration of Kr (atomic no. = 36)
=$1s^2$ $2s^2$ $2p^6$ $3s^2$ $3p^6$ $3d^{10}$ $4s^2$ $4p^6$ Total no. of s-electrons = 8 Total no. of p-electrons = 18 Difference = 10, no. of d-electrons = 10

Question 2. What is the minimum product of uncertainty in position and momentum of an electron?
Answer: $h/4\pi$

Question 3. Which orbital is non-directional?
Answer: s-orbital.

Question 4. What is the difference between the notations l and L?
Answer: l represents the sub shell and L represents shell.

Question 5. How many electrons in an atom can have n + l = 6?
Answer: 18.

Question 6. An anion A^{3+} has 18 electrons. Write the atomic number of A.
Answer: 15.

Question 7. Arrange the electron (e), protons (p) and alpha particle (α) in the increasing order for the values of e/m (charge/mass).
Answer: $\alpha < p < e$.

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