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Chemistry Class - 11: Chapter – 2. Structure of Atom – Part-1

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Multiple Choice Questions

Questions 1:

Which of the following conclusions could not be derived from Rutherford's α - particle scattering experiment?

- (i) Most of the space in the atom is empty.
- (ii) The radius of the atom is about 10^{-10} m while that of nucleus is 10^{-15} m.
- (iii) Electrons move in a circular path of fixed energy called orbits.
- (iv) Electrons and the nucleus are held together by electrostatic forces of attraction.

Answer: (iii)

Solution:

Questions-2

Which of the following options does not represent ground state electronic configuration of an atom?

- (i) $1s^2 2s^2 2p^6 3s^2 3p^6 3d^8 4s^2$
- (ii) $1s^2 2s^2 2p^6 3s^2 3p^6 3d^9 4s^2$
- (iii) $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^1$
- (iv) $1s^2 2s^2 2p^6 3s^2 3p^6 3d^5 4s^1$

Answer: (ii)

Solution:

Questions-3

The probability density plots of 1s and 2s orbitals are given in Fig. 2.1:

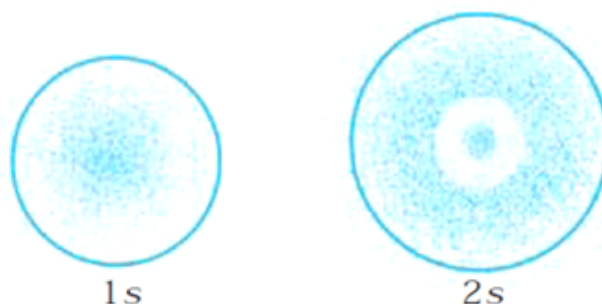


Fig. 2.1

The density of dots in a region represents the probability density of finding electrons in the region.

On the basis of above diagram which of the following statements is incorrect?

- (i) 1s and 2s orbitals are spherical in shape.
- (ii) The probability of finding the electron is maximum near the nucleus.
- (iii) The probability of finding the electron at a given distance is equal in all directions.
- (iv) The probability density of electrons for 2s orbital decreases uniformly as distance from the nucleus increases.

Answer: (iv)

Solution:

Questions-4

Which of the following statement is **not** correct about the characteristics of cathode rays?

- (i) They start from the cathode and move towards the anode.
- (ii) They travel in straight line in the absence of an external electrical or magnetic field.
- (iii) Characteristics of cathode rays do not depend upon the material of electrodes in cathode ray tube.
- (iv) Characteristics of cathode rays depend upon the nature of gas present in the cathode ray tube.

Answer: (iv)

Solution: