ARJUNA (NEET)

ATOMIC STRUCTURE

DPP-7

1. The value of n_1 for Paschen series of hydrogen spectrum is (n_1 = orbit number in which electron falls)
   (A) 1 (B) 2
   (C) 3 (D) 4

2. Radius of Bohr's orbit of hydrogen atom is
   (A) 0.24 Å (B) 0.48 Å
   (C) 0.53 Å (D) 1.06 Å

3. Bohr theory is not applicable for
   (A) He^+ (B) Li^{2+}
   (C) Be^+ (D) H

4. What is the energy associated with 3rd energy shell of hydrogen atom?
   (A) -2.18×10^{-18} J
   (B) -0.342×10^{-19} J
   (C) -0.726×10^{-18} J
   (D) -2.42×10^{-19} J

5. According to the Bohr Theory, which of the following transitions in the hydrogen atom will give rise to the least energetic photon?
   (A) n = 6 to n = 5 (B) n = 5 to n = 3
   (C) n = 6 to n = 1 (D) n = 5 to n = 4

6. Calculate the radii of 2nd Bohr orbit of Li^{2+}.
   (A) 52.9 pm (B) 70.53 pm
   (C) 29 pm (D) 56 pm

7. Calculate the energy of an electron in the first Bohr orbit of He^+.
   (A) -8.72×10^{-18} J (B) -4.18×10^{-18} J
   (C) -2.78×10^{-18} J (D) None of these

8. Calculate the energy associated with the first orbit of He^+. What is the radius of this orbit?

9. Calculate the ratio of the radius of 1st orbit of H atom to that of 4th orbit.

10. Calculate the velocity of the electron in the third orbit of hydrogen atom.

ANSWERS KEY

1. (C)
2. (C)
3. (C)
4. (D)
5. (A)
6. (B)
7. (A)
8. $E_1 = -8.72 \times 10^{-18}$ J
$r_1 = 0.0264$ nm
9. 1:16
10. 7.26×10^5 m/s

Note - If you have any query/issue

Mail us at support@physicswallah.org