HOTS QUESTIONS

1. How many photons of light having a wavelength 400nm are necessary to provide 1joule of energy?
2. Calculate the wave number for the shortest wavelength transition in the Balmer series of atomic hydrogen.
3. The wavelength of the first spectral line in the Balmer series is 6561 Å. Calculate the wavelength of the second spectral line in Balmer series.
4. What will be the ionisation energy of the hydrogen atom?
5. Find out the number of waves made by a Bohr electron in one complete revolution in its 3^{rd} orbit.
6. When would the wavelength associated with an electron become equal to the wavelength associated with a proton?
   (The mass of electron = 9.1×10^{-28} g, mass of proton = 1.67×10^{-24} g)
7. On the basis of Heisenberg's Uncertainty Principle, show that the electron cannot exist within atomic nucleus of radius 10^{-15} m.
8. Calculate the uncertainty in the position of an electron if uncertainty in its velocity is
   (a) 0.001%
   (b) Zero

   (The mass of electron = 9.1×10^{-31} kg, velocity of electron = 300 m/s)
9. Write down all the four quantum numbers for the outermost electron of sodium atom.
10. How many electrons in zinc have (n+l) value equal to 4?

CLASS: XI

SUBJECT: CHEMISTRY

CHAPTER: 2 (STRUCTURE OF ATOM)

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