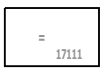
STRUCTURE OF ATOM

(1). Vilawelength of matter wave



Where,. E = Kinetic ane w

{211. Total number of nodim z n -1

Radial nodes = n- *1-*

Angular nodes • *I*

(3). Number of neutrons ■ A - Z

Nurnber of subshells in n^{th} shell ■

Number of orbitals in nth shell ■ r0

Number of electrons in nth tell $a\ 2n^2$

Number of orbitals In subshell = $21^{\cdot}$ + 1

Number of electrons in suhstiell E^{-} 2 ⊣ 1)

0). Energy. of quantum of radiation according to Planck's quantum theory

$E = hv$

$hie =$

Elin5telnr5 photoelectric qovatian.

(7). Une spadtru rri firf hydrogen

$\cdot = 11{:}6677$ ⊢ –) arri' where it wave number and v = $\frac{1}{A}$

Where n,

$_{11}$ – rt_r t ^{1}, $_{r4}$

(8). Bohr% rrr lid hydrogen atom

(2.1 Frequency of radiation absorbed or emitted during transition ; v =

$E_. - E,$

= Energy of bower energy state

E_2 = Energy at higher energy state.

(E4 Orbit angular momentum of an electron, $= 11 - \frac{h}{21(}$

'Where, n = 1, 2,

(c) Energy of stationary stares $E_r = -2.18.1G1^{-1}$ ⊣ ❩ ⊣

(0) Radii of the stationary statesforbits -50.9xidpra

(9). Energy gap between the two orbits

$$E = 11 \left(\frac{1}{n_1^2} - \frac{1}{n_2^2} \right)$$

Where $R_{tj} = 2.18 \times 10^{-18}$ J

Where, r_1 = initial orbit

r_2 = final orbit

(10), Atomic number (Z) = Number of protons In the nucleus of an atom.

= Number of electrons in a neutral atom

(11). Helsenbeirg's uncertainty principle

$$\Delta x \cdot \frac{h}{4\pi}$$

$$\Delta x \cdot \Delta m \geq \frac{h}{4\pi}$$

(12). Speed of light is equal to the product of frequency and wavelength of light

$$c = \nu\lambda$$

(13), Mass Number (A) = Number of protons + Number of neutrons