PH-105 Assignment Sheet - 2 (Quantum Mechanics)

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1. **Show that the Bohrs condition of quantization of angular momentum leads to a condition of formation of standing wave of electron along the circumference in the Bohr model of hydrogen atom.**
   Solution :
   Bohr's quatization rule states that $mvr = nh/2\pi$ so $mv = nh/2\pi r$
   Now for the electron if we find the de-broglie wavelength then $\lambda = h/p = h/mv = h/(nh/2\pi r) = 2\pi r/n$
   So $2\pi r = n\lambda$ which is the condition for constructive interference of a wave if we consider the electron to be a standing wave of wavelength given by de-broglie's hypothesis formed on circumference.