

If the series limit frequency of the Lyman series is ν_L , then the series limit frequency of the Pfund series is:

(1) $25\nu_L$

(2) $16\nu_L$

(3) $\nu_L / 16$

(4) $\nu_L / 25$

Based on JEE Main 2018 - [123IITJEE](#)

$$\frac{1}{\lambda} \propto \frac{1}{n_1^2} - \frac{1}{n_2^2}$$

$$\text{Or, } \nu \propto \frac{1}{n_1^2} - \frac{1}{n_2^2}$$

In the case of series limit, $n_2 \rightarrow \infty$

$$\therefore \nu \propto \frac{1}{n_1^2}$$

For Lyman series, $\nu_L \propto \frac{1}{1^2}$

For Pfund series, $\nu_P \propto \frac{1}{5^2}$

$$\therefore \nu_P = \frac{\nu_L}{25}$$

Hence, Option (4).