Q) If $mx^2 - 4mx + 5m + 1 > 0$, $\forall x \in R$, then 'm' lies in the interval

(a) $\left(-\frac{4}{61}, 0\right)$, (b) $\left[0, \frac{4}{61}\right)$ (c) $\left(\frac{4}{61}, \frac{61}{4}\right)$ (d) $\left(-\frac{61}{4}, 0\right)$

Sol :- Given eqn. $mx^2 - 4mx + (5m+1) > 0$

→ eqn is > 0, so, no real solution exist.

There for descriminant $(D) < 0$

$\Rightarrow D = b^2 - 4ac < 0$

$\Rightarrow (4m)^2 - 4(m)(5m+1) < 0$

$\Rightarrow 81m^2 - 20m^2 - 4m < 0$

$\Rightarrow 61m^2 - 4m < 0$

$\Rightarrow m(61m - 4) < 0$

$\Rightarrow m > 0, \quad m < \frac{4}{61}$

$\therefore m \in \left(0, \frac{4}{61}\right)$

$\therefore$ option 'B' is correct //