Q) The number of integral values of m for which the quadratic expression, $(1 + 2m)\, x^2 - 2(1 + 3m)\, x + 4(1 + m)$, $x \in R$, is always positive, is:

A) 7
B) 8
C) 3
D) 6

Solution:

Expression is always positive it

$2m + 1 > 0 \Rightarrow m > -\frac{1}{2}$ &

$D < 0 \Rightarrow m^2 - 6m - 3 < 0$

$3 - \sqrt{12} < m < 3 + \sqrt{12}$ . . .. (iii)

$\therefore$ Common interval is

$3 - \sqrt{12} < m < 3 + \sqrt{12}$

$\therefore$ Integral value of m {0, 1, 2, 3, 4, 5, 6}