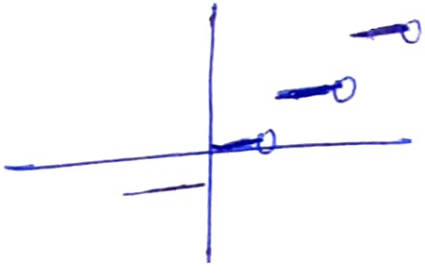
$$f(x) = [x] + (x - [x])^2 \quad , \forall\, x \in \mathbb{R}$$

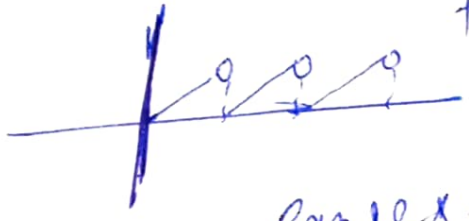
$\because$ fractional part function $\{x\} = x - [x]$

So $f(x) = [x] + \{x\}^2$

Range set of $[x]$ (greatest integer function) $= \mathbb{Z}$

Range set of $f(x) = \{x\}$





Range set $= (0, 1)$

$\mathbb{Z} + (0, 1)$

Range set of $f(x) = \mathbb{R} = (-\infty, \infty)$