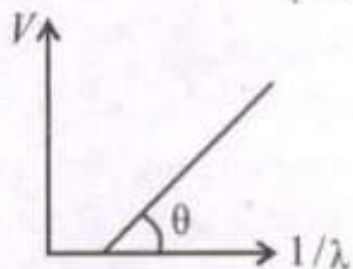**Q 03** In a photoelectric effect experiment, the graph of stopping potential V versus reciprocal of wavelength obtained is shown in the figure. As the intensity of incident radiation is increased : [Main Sep. 04, 2020 (II)]

(a) Straight line shifts to right
(b) Slope of the straight line get more steep
(c) Straight line shifts to left
(d) Graph does not change

ANS **(d)** According to Einstein's photoelectric equation

$$K_{max} = hv - \phi_0 \Rightarrow eV_s = \frac{hc}{\lambda} - \phi_0$$

$$\Rightarrow V_s = \frac{hc}{\lambda e} - \frac{\phi_0}{e} \quad \text{where } \lambda = \text{wavelength of incident light}$$

ϕ_0 = work function
V_s = stopping potential

Comparing the above equation with $y = mx + c$, we get slope $= \dfrac{hc}{e}$

Increasing the frequency of incident radiation has no effect on work function and frequency. So, graph will not change.