$\Rightarrow$ So, tightest lower bound is

$$T(n) = \Omega(n^2)$$

$$T(n) = 3 \times c\left(\frac{n}{5}\right)^2 + c\left(\frac{n}{2}\right)^2 + 2^n$$

$$= \frac{3cn^2}{25} + \frac{cn^2}{4} + 2^n$$

$$= \frac{37}{100} cn^2 + 2^n$$

$$= 0.37cn^2 + 2^n \geq cn^2$$

$\Rightarrow$ So, tightest lower bound is

$$T(n) = \Omega(n^2)$$