(a) Prove that $T(n) = 3n^3+4n+8 \in \Omega(n)$

(i) $3n^3+4n+8 \geq Cn \quad \forall \quad n \geq n_0$ //Find C and n_0

(ii) $3(1)^3 +4(1) +8 \geq C(1) \quad \forall \quad n \geq 1$

(iii) $15 \geq 15$

(iv) $\Rightarrow$ C=15 and $n_0=1$

(b) $O(n^2)$ is not a tight upper bound for T(n). The tight upper bound for T(n) is $O(n^3)$

(c) T(n) is NOT $\in \Theta(n^4)$.