

4-1 (a):  $T(n) = 2T(n/2) + n^3$

Using Master method:

$$f(n) = n^3 \quad a=2 \quad \& \quad b=2.$$

$$\therefore n^3 = \Omega(n^2)$$

case (3), holds:

$$\& \text{ hence } T(n) = \theta(f(n)) = \underline{\underline{\theta(n^3)}}$$

Ans: