(i)

$$SE(Jf) = S(n-r)$$

$$SE(FT) = \frac{n^3}{4}$$

$$S(FT) = \frac{5n^2}{4}$$

$$\frac{n^3}{4} = \frac{5n^2}{4}(n-r)$$

$$4n = 5r$$

$$r = \frac{4n}{5},$$

where *FT* = Fat Tree, *Jf* = Jellyfish, *S* = number of switches, *SE* = number of servers

(ii)

$$TH \leq \frac{l}{\bar{h}v_f} = \frac{Nr}{\bar{h}N} = \frac{r}{\bar{h}} = \frac{4n}{5\bar{h}}$$

(iii)