Production: $WL = \dfrac{10,000,000(0.6/60)}{1 - 0.03}$ $= 103,092.8$ hr/year.

$AT = 50(15)(3)(8)(0.96) = 5760$ hr/year.

Setup = number batches/year = $\dfrac{10,000,000}{1250} = 8000$ setups/year

$WL = (8000)(2) = 16,000$ hr/year
                                        per cell.

$AT = (50)(5)(3)(8) = 6000$ hr/year.

$n = \dfrac{103092.8}{5760} + \dfrac{16000}{6000}$ $= 17.9 + 2.67 = 20.57$.

$\Rightarrow$ We require 21 forging cells.

Total area of the forging plant $= (21)(500)\left(1 + \dfrac{40}{100}\right) = 14,700$ sq ft.

Current hourly rate for the cluster $= 12 + 12(18) = \$48/\text{hr}$

$T_c = 0.7 + 0.6 = 1.3$ min.

Worker engagement time/cycle $= 2(T_s + T_r) = 2(0.7 + 0.2)$
                                                          $= 1.8$

Idle time can't be computed without machine automatic time. When we take 0.6 min as machine auto time then we cannot complete the work as cylic time is less than worker engagement time/cycle