SHUBHAM GUPTA
180749

HW 17

a) $\frac{\lambda_1}{\lambda_1 + \lambda_2}$

b) $\frac{\lambda_1}{\lambda_1+\lambda_2} + \frac{\lambda_2 \lambda_1}{(\lambda_1+\lambda_2)^2}$

c) $E[T]$ = expected time C spent on system.

$T = S_1 + S_2 + W_A + W_B$.

S_1: service time of C on server 1

S_2: time spent by C on server 2

W_A: time spent by C while A is being served

W_B: time spent by C while B is being served

$$T = S_1 + S_2 + W_A + W_B.$$

$$E(T) = E[S_1] + E[S_2] + E[W_A] + E[W_B].$$

$$E[T] = \frac{1}{\lambda_1} + \frac{1}{\lambda_2} + \frac{1}{\lambda_2}\frac{\lambda_1}{(\lambda_1+\lambda_2)} + \frac{1}{\lambda_2}\left(\frac{\lambda_1}{\lambda_1+\lambda_2} + \frac{\lambda_1\lambda_2}{(\lambda_1+\lambda_2)^2}\right).$$