HW1

R and C/C++ are independent since $\underset{\text{Both}}{.3} = \underset{R}{.5} \times \underset{C/C++}{.6}$

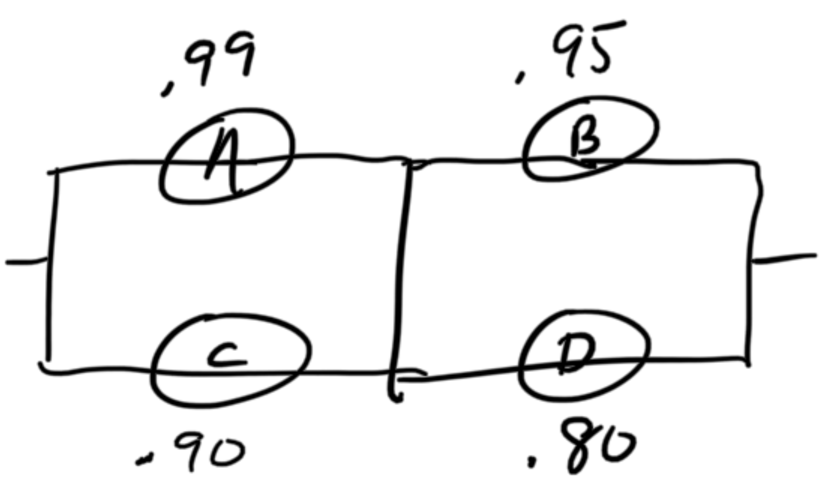
① $P(R \cap \text{not } C/C{+}{+}) = P(R) \cdot P(\overset{\text{NOT}}{C/C{+}{+}})$

$= (.5)(1-0.6) = 0.20$

② $P(\text{not } C/C{+}{+}) = 1 - P(C/C{+}{+}) = 1 - 0.6 = 0.4$

③ $P(C/C{+}{+} \text{ OR } R) = P(C/C{+}{+}) + P(R) - P(\text{both})$

$= 0.6 + 0.5 - 0.3 = 0.80$

⑦ 

(i) $\begin{bmatrix} A \\ C \end{bmatrix}$ parallel = E

$P(\text{at least 1 works}) = 1 - P\left(\begin{matrix}\text{none} \\ \text{work}\end{matrix}\right)$

$= 1 - (.01)(.10) = .999$

(ii) $\begin{bmatrix} B \\ D \end{bmatrix}$ parallel $\Rightarrow 1 - P(\text{none}) = 1 - (.05)(.20) = .99$
= F

(iii) E — F Sequel $\Rightarrow P(\text{both work})$
.999 .99

$= P(E) \cdot P(F)$

$= .989$

⑧ $P(\text{Few} \cup \text{GPA} < 2.0) = P(\text{Few}) + P(<2.0) - P(\text{both})$

$= \frac{890}{1000} + \frac{255}{1000} - \frac{175}{1000}$

$= \frac{970}{1000} = 0.970$

(12) $A \setminus B = A - A \cap B$

if A and B are disjoint $A \cap B = \phi$

So $A - A \cap B = A - \phi = A$

True