# HW1

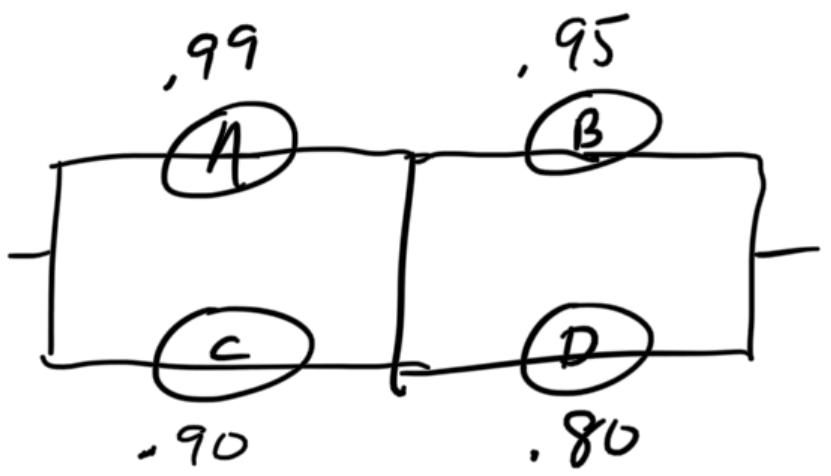
R and c|c++ are independent since $.3 = .5 \times .6$ (Both = R and c|c++)

① $P(R \cap \text{not } c|c++) = P(R) \cdot P(\overset{\text{NOT}}{c|c++}) = (.5)(1-0.6) = \boxed{0.20}$

② $P(\text{not } c|c++) = 1 - P(c|c++) = 1 - 0.6 = \boxed{0.4}$

③ $P(c|c++ \text{ OR } R) = P(c|c++) + P(R) - P(\text{both}) = 0.6 + 0.5 - 0.3 = \boxed{0.80}$

⑦




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

$P(\text{at least 1 works}) = 1 - P(\overset{\text{none}}{\text{work}}) = 1 - (.01)(.10) = .999$

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

$= F$

(iii) E — F Sequel $\Rightarrow P(\text{both work}) = P(E) \cdot P(F) = \boxed{.989}$

(.999, .99)

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

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

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

(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