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January 9, 2017

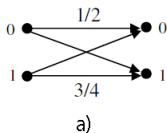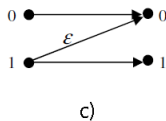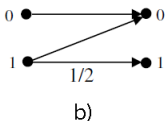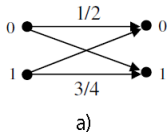1 For the channel at pic.a, with a uniform input alphabet X, calculate the mutual information $I(x; y), x \in X, y \in Y$ and the average mutual information $I(X; Y)$. Explain the results.

a)   b)   c)
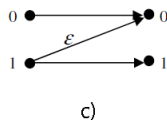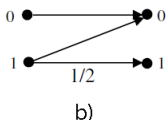
2 For the channel at pic.b, draw a plot of dependence between $I(X;Y)$ and $p(x = 1) = p$ without doing calculations and without using properties of mutual information.

a)   b)   c)

3 For the channel at pic.5c, draw a plot mutual
information as a functions of ε, assuming
uniform alphabet, without doing calculations and
without using properties of mutual information.

a)   b)   c)
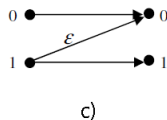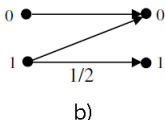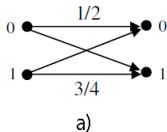
4 For channels at pic.a-f, calculate the channel throughput.