

6.441 Transmission of Information

Problem Set 4

Spring 2010

Due date: March 9

Problem 1

(a) Consider composite channel created from a BSC with ϵ cross-over probability whose output is the input of a BEC with δ probability of erasure. Find the capacity of this composite channel.

(b) Replace the BSC with a binary asymmetric channel with probability 0.1 of 1 becoming a 0 and 0.2 of 0 becoming a 1. Let $\delta = 0.3$ for the BEC. Using Arimoto-Blahut, find the capacity of this composite channel.

Problem 2

Problem 8.4 in Cover and Thomas (**first** edition) or Problem 7.3 in Cover and Thomas (**second** edition).

Problem 3

Problem 8.5 in Cover and Thomas (**first** edition) or Problem 7.4 in Cover and Thomas (**second** edition).

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