Question 1

Consider a binary communication channel, with input X having a Bernoulli distribution with parameter $p = 0.9$. The common error probability is $\epsilon = 0.05$ (i.e., the probability that the received character differs from the input character is ϵ). Let Y denote the output character.

Part 1: Show that Y is a Bernoulli distribution with parameter q.

Solution

Answer

□

Part 2: Determine q.

Solution

Answer

□

Part 3: Compute the joint probability distribution function of (X, Y).

Solution

Answer

□