Assignment No. 2

CPE251 Probability Methods in Engineering

Student Name: _____

Registration Number: _____

Marks Obtained: _____

Total Marks: 20

Resource Person

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Problem 1 (CLO1/C4) (10)

There are two biased coins, A and B. Coin A comes up heads with probability 1/4. Coin B comes up heads with probability 3/4. However, you are not sure which is which. So, you choose a coin randomly and flip it. If the flip is heads, you guess that the flipped coin is B; otherwise, you guess that the flipped coin is A. Let events A and B designate which coin was picked. What is the probability P[C] that your guess is correct?

Problem 2 (CLO1/C4) (10)

There are two biased coins, A and B. Coin A comes up heads with probability 1/4. Coin B comes up heads with probability 3/4. However, you are not sure which is which. So, you flip each coin once, choosing the first coin randomly. Use H_i and T_i to denote head and tail respectively for the result of flip *i*. Let A_1 be the event that coin A was flipped first. Let B_1 be the event that coin B was flipped first. Explain your answer for the following:

(a) Calculate $P[H_1H_2]$.
(b) Are H_1 and H_2 independent?