## Assignment No. 2

### **CPE251 Probability Methods in Engineering**

Student Name:	
Registration Number:	
Marks Obtained:	
Total Marks:	<u>20</u>

# Resource Person Engr. Dr. Muhammad Farooq-i-Azam



Department of Computer Engineering COMSATS University Islamabad, Lahore Campus

### 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<sub>1</sub>H<sub>2</sub>].
- (b) Are H<sub>1</sub> and H<sub>2</sub> independent?