NAME: ID: SIGNATURE:	Q1 (1.5)	Q2 (1.5)	Q3 (2)	TOTAL (5)

December 4, 2018

BLG 337E - PRINCIPLES OF COMPUTER COMMUNICATIONS

Assoc. Prof. Dr. Berk CANBERK

T.A. Tuğçe BİLEN

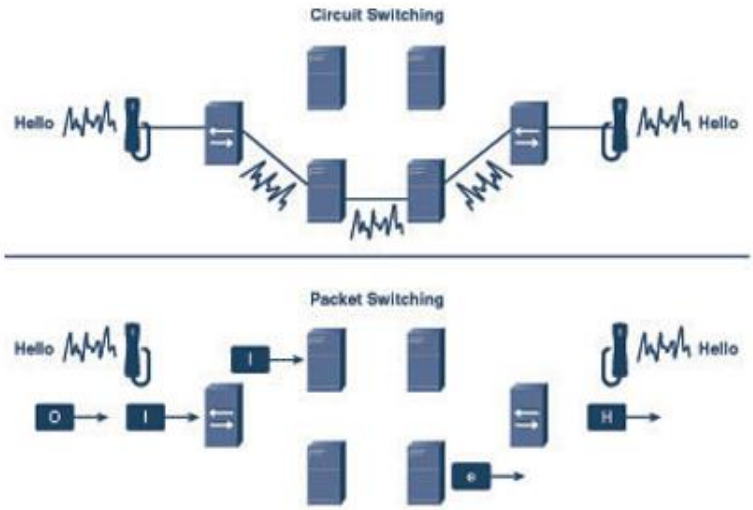
QUIZ-4

Q1- (1.5 point)

What are the differences between circuit switching and packet switching? Motivate your answer by giving a sample scenario for each case.

ANSWER:

Circuit Switching	Packet Switching
Physical path between source and destination	No physical path
All packets use same path	Packets travel independently
Reserve the entire bandwidth in advance	Does not reserve
Bandwidth wastage	No bandwidth wastage
No store and forward transmission	Supports store and forward transmission

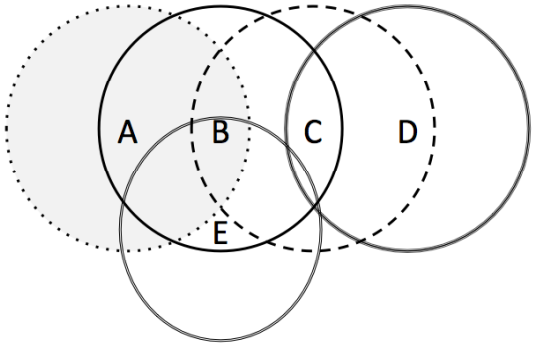


Q2- (1.5 point)

Is Collision Detection possible on a wireless link? Why or why not? Motivate your answer.

ANSWER: In wired LANs, the signal strengths can be measured. Accordingly, the transmitted and received signals can be compared easily. On the other hand, in wireless LANs, the received signal strength can be overwhelmed by local transmission strength. Therefore, in wireless links, collision avoidance is used instead of collision detection.

Q3- (2 point)



In this wireless topology, A, B, C, and D all have equi-sized transmission ranges, while E has a smaller range. Assume that two nodes' transmissions will interfere if and only if they transmit at the same time and their transmission areas overlap. Further, assume that losses only occur due to collisions.

a) When D communicates with C, what nodes are *exposed terminals* and what nodes are *hidden terminals?*
ANSWER: only B is a hidden terminal and there are no exposed terminals

b) If A sends data to B and C sends data to D (as fast as they can), and no collision detection mechanism is used, what is the throughput of their transfer as a proportion of their send rate?
A -> B ?
ANSWER: %0
C -> D ?
ANSWER: %100

DURATION: 30min