

Quiz Sheet #1

Problem 1.1: *Local Area Networks (IEEE 802)*

(1+1+1+1 = 4 points)

true false

- CSMA/CD is used in wireless networks following the 802.11 standards.
- Ethernet uses the cyclic redundancy check (CRC) for error correction.
- Backward learning is used by bridges to create a cycle free topology.
- A bridge port can transition directly from the blocking state to the forwarding state.

Solution:

true false

- CSMA/CD is used in wireless networks following the 802.11 standards.
- Ethernet uses the cyclic redundancy check (CRC) for error correction.
- Backward learning is used by bridges to create a cycle free topology.
- A bridge port can transition directly from the blocking state to the forwarding state.

Problem 1.2: *Ethernet (IEEE 802.3)*

(1+1 = 2 points)

Please provide short answers to the following questions.

- a) What is promiscuous mode?
- b) When is a jamming sequence used by an Ethernet adaptor?

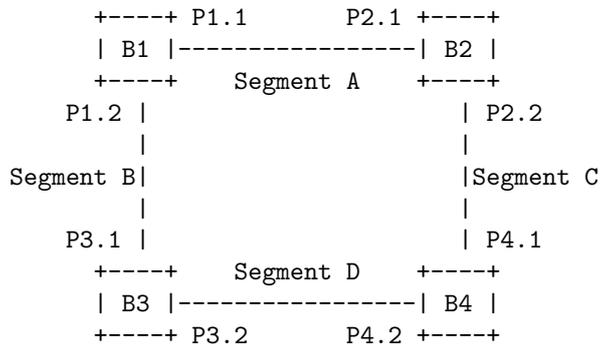
Solution:

- a) In promiscuous mode, an Ethernet adaptor skips the destination address check so that all received frames are delivered to the networking stack of the host.
- b) A sender on detecting a collision of frames sends a 32-bit jamming sequence and later stops the transmission.

Problem 1.3: Spanning Tree Protocol (IEEE 802.1D)

(1+1+1+1 = 4 points)

Consider the network topology shown below. The cost of all network segments is the same. The priority of all bridges is the same. In case of a tie, use the bridge with the lowest ID.



a) Identify the root bridge

root bridge = _____

b) Identify the root port in all non-root bridges

root port of B1 = _____

root port of B2 = _____

root port of B3 = _____

root port of B4 = _____

c) Identify the designated port for each segment

designated port of segment A = _____

designated port of segment B = _____

designated port of segment C = _____

designated port of segment D = _____

d) Identify the ports that will be blocked

list of blocked ports = _____

Solution:

a) Identify the root bridge

root bridge = B1

b) Identify the root port in all non-root bridges

root port of B1 = none

root port of B2 = P2.1

root port of B3 = P3.1

root port of B4 = P4.1

c) Identify the designated port for each segment

designated port of segment A = P1.1

designated port of segment B = P1.2

designated port of segment C = P2.2

designated port of segment D = P3.2

d) Identify the ports that will be blocked

list of blocked ports = P4.2