CENG 3331 Intro to Telecommunication and networks- Homework 8

Michael Lankford

1816337

Problem 1:

Network topology is the way the endpoints that attach the network are interconnected and there are 4 types:

- Bus- each device is connected to a single cable
- Tree- there is only one connection between any two connected devices / parent and child hierarchy
- Ring- each device is connected to 2 other devices in a ring to form a constant chain
- Star- each device is connected to a central device like a hub or switch

Problem 2:

There are 3 services provided by LLC:

- Unacknowledged connectionless service- relies on the transport layer to deal with reliability and error correction / delivery of data is not guaranteed
- Connection-mode service- logic connection is set up between two users exchanging data / flow and error control are provided
- Acknowledged connectionless service- a combination of unacknowledged connectionless service and connection-mode service / no logic connection is set up

Problem 3:

There are several differences between LLC and HDLC:

- LLC uses a type 2 operation to support connection-mode service
- LLC supports unacknowledged connectionless service using type 1 service
- LLC supports an acknowledged connectionless service using a type 3 operation
- LLC permits multiplexing

Problem 4:

The key requirements for a routing function of a packet-switching network are the way a packet is sent out on the network to get to its destination. There are 4 types, and they are:

- Fixed

- Flooding
- Random
- Adaptive

Problem 5:

a. The possible routes from sunk to T are:

i.	Sink-A-B-T	total PA = 4	total a = 3
ii.	Sink-A- B- C-T	total PA = 6	total a = 6
iii.	Sink-D-T	total PA = 3	total a = 4
iv.	Sink-E-F-T	total PA = 5	total a = 6

b. The maximum PA approach results in the route of Sink-E-F-T

c. The route that has minimum energy is the route of Sink-A-B-T

d. The route that has minimum hops is the route of Sink-D-T

e. The route that has maximum minimum PA is the route of Sink-D-T