

SOLUTION ASSIGNMENT-06 6A

PROBLEMS

Problem 5

If we divide 10011 into 1010101010 0000, we get 1011011100, with a remainder of R=0100. Note that, G=10011 is CRC-4-ITU standard.

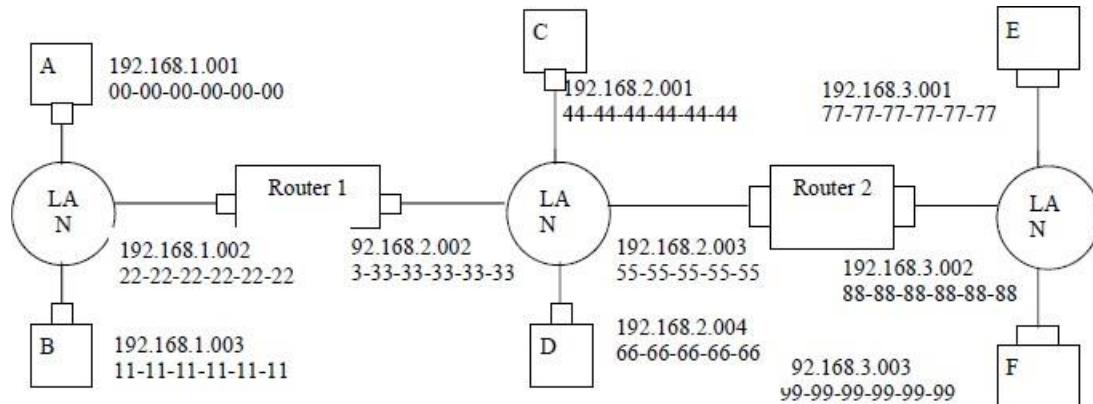
Problem 6

Problem 6

- a) remainder of R=1000.
- b) remainder of R=1111.
- c) remainder of R=1110.

Problem 14

a), b) See figure below.



c)

1. Forwarding table in E determines that the datagram should be routed to interface 192.168.3.002.
2. The adapter in E creates an Ethernet packet with Ethernet destination address 88-88-88-88-88-88.

3. Router 2 receives the packet and extracts the datagram. The forwarding table in this router indicates that the datagram is to be routed to 198.162.2.002.

4. Router 2 then sends the Ethernet packet with the destination address of 33-33-33-33-33-33 and source address of 55-55-55-55-55-55 via its interface with IP address of 198.162.2.003.

5. The process continues until the packet has reached Host B.

d) ARP in E must now determine the MAC address of 198.162.3.002. Host E sends out an ARP query packet within a broadcast Ethernet frame. Router 2 receives the query packet and sends to Host E an ARP response packet. This ARP response packet is carried by an Ethernet frame with Ethernet destination address 77-77-77-77-77-77.

Problem 22

i) from A to switch: Source MAC address: 00-00-00-00-00-00

Destination MAC address: 55-55-55-55-55-55

Source IP: 111.111.111.001 (IP Address of A - 192.168.1.001 (according to P14s Solution))

Destination IP: 133.333.333.003 (IP Address of F - 192.168.3.003 (according to P14s Solution))

ii) from switch to right router: Source MAC address: 00-00-00-00-00-00

Destination MAC address: 55-55-55-55-55-55

Source IP: 111.111.111.001 (IP Address of A- 192.168.1.001 (according to P14s Solution))

Destination IP: 133.333.333.003 (IP Address of F - 192.168.3.003 (according to P14s Solution))

iii) from right router to F: Source MAC address: 88-88-88-88-88-88

Destination MAC address: 99-99-99-99-99-99

Source IP: 111.111.111.001 (IP Address of A - 192.168.1.001 (according to P14s Solution))

Destination IP: 133.333.333.003 (IP Address of F - 192.168.3.003 (according to P14s Solution))

Problem 26

Action	Switch Table State	Link(s) packet is forwarded to	Explanation
B sends a frame to E	Switch learns interface corresponding to MAC address of B	A, C, D, E, and F	Since switch table is empty, so switch does not know the interface corresponding to MAC address of E
E replies with a frame to B	Switch learns interface corresponding to MAC address of E	B	Since switch already knows interface corresponding to MAC address of B
A sends a frame to B	Switch learns the interface corresponding to MAC address of A	B	Since switch already knows the interface corresponding to MAC address of B
B replies with a frame to A	Switch table state remains the same as before	A	Since switch already knows the interface corresponding to MAC address of A