Worksheet 10

1. What are the two most important network-layer functions in a datagram network?

2. What is the difference between routing and forwarding?

3. What are the three types of switching fabrics? Which can send multiple packets across the fabric in parallel?

4. Describe how packet loss can occur at input ports. Describe how packet loss at input ports can be eliminated (without using infinite buffers).

5. Describe how packet loss can occur at output ports. Can this loss be prevented by increasing the switch fabric speed?

6. What is HOL blocking? Does it occur in input ports or output ports?

7. Consider a datagram network using 32-bit host addresses. Suppose that a router has three interfaces, numbered 0 through 2, and that packets are to be forwarded to these link interfaces as follows. Any address not within the ranges in the table below should not be forwarded to an outgoing link interface. Create a forwarding table using longest prefix matching.

Destination address range	Outgoing link interface
00000000 00000000 00000000 00000000 through 00000001 11111111 11111111 11111111	0
01010101 00000000 00000000 00000000 through 01010101 11111111 11111111 11111111	1
01010110 00000000 00000000 00000000 through 01010111 11111111 11111111 11111111	2