SOLUTION ASSIGNMENT-04 6A

PART-01

REVIEW QUESTIONS

R4. The role of the forwarding table within a router is to hold entries to determine the outgoing link interface to which an arriving packet will be forwarded.

R17. The 8-bit protocol field in the IP datagram contains information about which transport layer protocol the destination host should pass the segment to.

R18. Time-to-live.

R19. No. IP header checksum only computes the checksum of an IP packet's IP header fields, which share no common bytes with the IP datagram's transport-layer segment part.

PROBLEMS

Problem 8.

a)

Prefix Match	Link Interface
11100000 00	0
11100000 01000000	1
1110000	2
11100001 1	3
otherwise	3

b)   Prefix match for first address is 5th entry: link interface 3
       Prefix match for second address is 3nd entry: link interface 2
       Prefix match for third address is 4th entry: link interface 3

Problem 11

223.1.17.0/26

223.1.17.128/25

223.1.17.192/28

Problem 21

S2 Flow Table	
Match	**Action**
Ingress Port = 1; IP Src = 10.3.*.*; IP Dst = 10.1.*.*	Forward (2)
Ingress Port = 2; IP Src = 10.1.*.*; IP Dst = 10.3.*.*	Forward (1)
Ingress Port = 1; IP Dst = 10.2.0.3	Forward (3)
Ingress Port = 2; IP Dst = 10.2.0.3	Forward (3)
Ingress Port = 1; IP Dst = 10.2.0.4	Forward (4)
Ingress Port = 2; IP Dst = 10.2.0.4	Forward (4)
Ingress Port = 4	Forward (3)
Ingress Port = 3	Forward (4)

Problem 22

S2 Flow Table	
Match	**Action**
Ingress Port = 3; IP Dst = 10.1.*.*	Forward (2)
Ingress Port = 3; IP Dst = 10.3.*.*	Forward (2)
Ingress Port = 4; IP Dst = 10.1.*.*	Forward (1)
Ingress Port = 4; IP Dst = 10.3.*.*	Forward (1)

PART-02

Network	Network Address	Subnet mask	First available host address	Last available host address	# of available host addresses
Network 1	201.180.128.0	/24	201.180.128.1	201.180.128.254	254
Network 2	201.180.129.0	/26	201.180.129.1	201.180.129.62	62
Network 3	201.180.129.64	/27	201.180.129.65	201.180.129.94	30
Network 4	201.180.129.96	/27	201.180.129.97	201.180.129.126	30
Network 5	201.1180.129.128	/27	201.180.129.129	201.180.129.158	30