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Chapter - 21

Excercise

Q13, 14, ~~15~~ 16

0X0001	0X0800
0X06 | 0X04	0X0001
0X2345AB4F	
0X67CD	0X7B2D(125.45)
0X170C(23.12)	0XAABB
0X000000000000	
0X7BOD4E0A (125.11.78.10)	

~~Ans14~~

Ans15

0XFFFFFFFF	0X2345AB4F67CD	0X0806
Destination add.	Source addr.	Type Data

Ans16 | 0X2345AB4F67CD | 0XAABBA24F67CD | 0X0806 |
Destination addr. Source addr. Type data

Ans17 It could happen host B is unreachable for some ~~reason~~ The error message is generated by an intermediate router could then be lost on its way back to host A. generated by an intermediate router

were lost.

Ans 18 The checksum is 0xD399 or 1101 0011 1001 1001

		1	2	1	2	← carry
B and D	→	0	8	0	0	
0	→	0	0	0	0	
123	→	0	0	7	B	
25	→	0	0	1	9	
Hand e	→	4	8	6	5	
I and I	→	6	C	6	C	
0 and pad	→	6	F	0	0	
Partial Sum		2	C	6	5	
Carry from last column					1	
Sum		2	C	6	6	
Checksum		D	3	9	9	

Ans 19 The appropriate ICMP message destination unreachable message. This type of message has different types of codes what is unreachable. In this case, the code is 0, which means the network is unreachable.

Ans 20 The appropriate ICMP message is destination unreachable message. This type message has diff. types of codes to declare what is unreachable. In this case, the code is 3, which means the port is unreachable (The codes are not discussed in the chapter; consult references for more information).

Ans 21

IP : 11100111 0 0000

Ethernet: 00000001 00000000 01011110 0 0000

The Ethernet address is hexadecimal is 0x01005E

Ans 22 A router should send only 1 query mes
no matter how many sites entries it ha
in its group table. The message will
broadcast to all of the locals node
are below it in the spanning tree

Ans 23 The host must send as many as fi
different report messages at random time i
order to preserve membership in fi
diff groups.

Ans 24

4	5	0	Length of IP header plus dat
		0	0
1		Protocol	checksum

185.23.5.6

185.23.255.255

4	5	0	Length of IP header plus data
		0	0
Time to live		Protocol	checksum

185.23.5.6

226.17.18.4

Data

Ans 25 No action should be taken.

26. It should set the state of the 2 entries to Delaying and start a timer for with a random time. As each group timer expires, a membership report message is sent twice for each group to the router that sent the query.

27. Ethernet:

Supported number of groups using 23 bits = 2^{23} = 8388608 groups

IP:

Supported number of groups using 28 bits = 2^{28} = 268435,456 groups

~~IP~~ Address space lost

268,435,456 − 8,388,608 = 260,046,848 groups

28 a. IP: 234.18.72.8 → Ethernet: 0x01005E124808

b. IP: 235.18.72.8 → Ethernet: 0x01005E124808

c. IP: 237.18.6.88 → Ethernet: 0x01005E120658

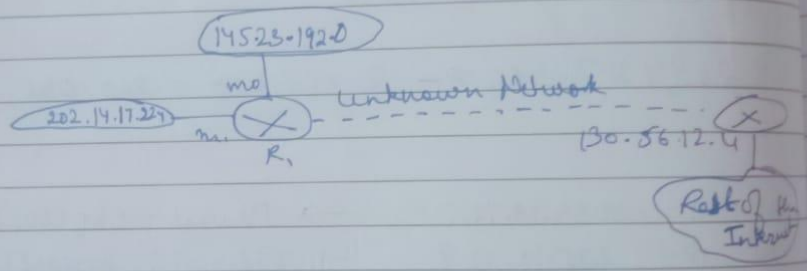
d. IP: 224.88.12.8 → Ethernet: 0x01005E580C08

Chapter 22

13 A host that is totally isolated needs no routing information. The routing table has no entries.

14 A routing table for a LAN not connected to the Internet and with no subnets can have a routing table with host-specific addresses. There is no next-hop addresses since all packets remain within the network.

15.



Ans16 If the packet with destination address 140.24.7.194 arrives at R3, it gets sent to interface m0. If it arrives at R2, it gets sent to interface m1 and then to router R3. The only way R1 can receive the packet is if the packet comes from organization 1, 2 or 3, it goes to R1 and is sent out from interface m3.

Ans17 R1 cannot receive a packet with this for m0 because if any host in organization 1 sends a packet with this destination address the delivery is direct and does not go through R1.

Ans18

Ans19

Ans20

Ans 18

Mask	Network address	Next-hop address	Interface
/20	120.14.64.0	--	m0
/20	120.14.96.0	--	m2
/20	120.14.112.0	--	m3
/0	0.0.0.0	default router	m4

Ans 19

mask	Network address	next-hop-address	Interface
/23	120.14.64.0	--	m0
/23	120.14.66.0	--	m1
/23	120.14.68.0	--	m2
/23	120.14.70.0	--	m3
/23	120.14.72.0	--	m4
/23	120.14.74.0	--	m5
/23	120.14.76.0	--	m6
/23	120.14.78.0	--	m7
/0	0.0.0.0	default router	m8

Ans 20

Mask	Network add.	next-hop addr.	Interface
/22	124.14.96.0	-	m0
/22	124.14.100.0	-	m1
/22	124.14.104.0	-	m2
/22	124.14.108.0	-	m3
/0	0.0.0.0	0	m4

Ans 23 In distance vector routing each router sends all of its knowledge about an autonomous system to all of the routers on its neighboring networks at regular intervals. It uses a fairly fairly simple algorithm to update the routing table but results in a lot of unneeded network traffic. In link state routing a router floods an autonomous system with information about changes in a network only when changes occur.

Ans 24

Network	Hops	
Net 1	3	C
" 2	2	C
" 3	1	F
" 4	5	G

25 Pheers are $2^2 + (10 \times N)$ = Empty bytes in a message

Ans 29 Transient networks ; N1, N2, N5 and N6
Stub networks N3 and N4.

Ans 30

Destination	Interface
10.0.0.0	2

Ans 31. No,

32. Yes

Ans 33 Yes

31. No, RPF does not create a shortest path tree because a network can receive more than one copy of the same multicast packet. RPF creates a graph instead of tree.

32. Yes RPB creates a shortest path tree and its leaves are network. However, the delivery of the packets are based on broadcasting instead of multicasting

Ans 33 Yes, RBT RPM creates a shortest path tree because it is actually RPB with pruning and grafting features. The leaves of the tree are the ~~network~~ network.