PDF : 1111

Q1(a)

IP network : 144.16.192.0/23

Subnet 1

Prefix length = $32 - \log_2 256 = 32 - 8 = 24$

Subnet 2

Prefix length = $32 - \log_2 128 = 32 - 7 = 25$

Subnets 3 & 4

Prefix length = $32 - \log_2 64 = 32 - 6 = 26$

2

144.16.11000000.00000000

Network ID | Host ID

Subnet 1 ~~144.16.192~~

144.16.192.0/24 1

Subnet 2

144.16.193.0/25 1

Subnet 3

144.16.193.128/26 OR 144.16.192.128/26 1

Read 192 as 193

Subnet 4

144.16.193.192/26 OR 144.16.192.192/26 1

Q1(b)

Destination IP = 144.16.203.88

144.16.203.01011000

(i) Matching with 144.16.203.2

Network length = 24

So, there is a match.

Matching with 144.16.203.69

144.16.203.01000101

Net length = 26

So, there is a match.

Matching with 144.16.203.170

144.16.203.10101010

So, there is no match.

With default case, there is always a match. 4

(ii) Since the longest prefix match is for 144.16.203.69, we will choose 144.16.203.69 as the next hop to send the packet. 4

(iii) ~~ffff~~

ff:ff:ff:ff:ff:ff , ARP 4

eth1 , IP

Read m1, not eth1

Q2

Marking scheme:
Fields TLEN, Offset → 2 marks each
Other fields → 1 mark each.

(3)

	Fields	Packet 1	Packet 2	Packet 3	Packet 4
	HLEN	5	5	5	5
	TLEN	596	420	596	168
*	ID	1234	1234	1234	1234
	RB	0	0	0	0
	DF	0	0	0	0
	MF	1	1	1	0
	Offset	0	72	122	194
	Source IP	150.100.10.20	150.100.10.20	150.100.10.20	150.100.10.20
	Dest IP	198.40.50.60	198.40.50.60	198.40.50.60	198.40.50.60
*	TTL	23	23	23	23

* ID is taken as 1234. But ~~it~~ will be diff for each student. TTL will also be different accordingly

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All other QP variants

Q1 → Same (or similar) as Q1 of PDF 1111

Q2 → Same (or similar) as Q2 of PDF 1111