Data Communication And Networking

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CSE DevOps 18

R171218016-500067759

Assignment

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DevOps '18

500067759 - R171218016

- i) $2^8 = 256$
  ii) $2^{16} = 65536$
  iii) $2^{64} = 1.84 \times 10^{19}$

- $2^n = 1024 \Rightarrow n = \log_2 1024 \Rightarrow n = 10$

- $3^{10} = 59041$

- i) 01110010 00100010 00000010 00001000
- ii) 10000001 00001110 00000110 00001000
- iii) 11010000 00100010 01101100 00001100
- iv) 11101110 00100010 00000010 00000000

- i) 127.240.103.125
- ii) 175.192.240.29
- iii) 223.176.31.93
- iv) 239.247.199.29

classmate

Date

Page

- i) C
  ii) D
  iii) A
  iv) B

- i) E
  ii) B
  iii) C
  iv) D

- i) 34.2.8
  ii) 8.6
  iii) 12

114

132.56

208.34.54

• H.A	25	34	12	58
Mask	255	255	0	0
NA	25	34	0	0
HA	25	34	12	58
MC	0	0	255	255
LA	25	34	255	255

• H.A	182	44	82	18
Mask	255	255	255	192
NA	182	44	82	0
HA	182	44	82	18
MC	0	0	0	63
LA	182	44	82	63

i) $\log_2 1024 = 10$

Extra 1s = 10

Possible subnet = 1024 with mask /26

ii) $2^{32-26} = 64$

iii) First 130 56 0 0 (1)

Last 130 56 0 63 (1)

iv) First 130 56 255 192 (1024)

Last 130 56 255 255 (1024)

- $\log_2 32 = 5$

  $\therefore l_s = 5$

  Possible subnets = 32 with mask /29

$2^{32-29} = 8 = 2^3$

First	211	17	180	0	
Last	211	17	180	7	
First	211	17	180	248	(32)
Last	211	17	180	255	(32)

• 24 (a) 124
(b) 18
(c) 119
(d) 120

• 25 (a) No. of address $= 2^{32-29} = 2^3 = 8$

From 123 56 77 32
to 123 56 77 39

(b) No. of address $= 2^{32-27} = 2^5 = 32$

from 200 17 21 128
to 200 17 21 159

(c) No. of address $= 2^{32-23} = 512$

from 17 34 16 0
to 17 34 17 255

• 28 It is not a network!

• 29 (i) 2340:1ABC:119A:A000:0

(ii) 0:AA::119A:A231

(iii) 2340::119A:A001:0

(iv) 0:0:0:2340::0

ans 31 (d) loopback
(c) multicast
(b) Site local
(a) link local

ans 32 (a) unspecified
(b) mapped
(c) provider based INTERNIC
(d) provider based RIPNIC
(e) provider based APNIC

Ans 33 58ABC1

Ans 34 0::8106:C22

0::FFFF:8108:C22

Ans 35 FE80::123

FECD::123

Ans 36 FF02 ((group ID))

Ans 38

From → 581E:1456:2314:0000:ABCD:0000:0001

to → 581E:1456:2314:0000:ABCD:0000:0008

Chapter 20

Ans1 i) The delivery of a frame in the data link layer is from node to node

ii) The delivery of packet at the network layer is from host to host

Ans2 i) In connection less services there is no teardown and setup

ii) Data trasfer is the only phase in communication

iii) 3 phases → Setup, data transfer, teardown

Ans3 (a) Each data link layer's protocol has a limit on the size of the packet it can carry.

(b) Datagram must be fragmented

(c) IPv4 allow fragmentation at host or any router.

(d) IPv6 allow fragmentation only at host

Ans (i) The value of checksum field is set to 0

(ii) The entire header is divided into 16-bit

(iii) The checksum in the IPv4 packet covers only header

Ans 9 The checksum is eleminated in IPv6 because it is provided by upper layer protocols, it is therefore not needed at this level.

Ans Header length = Total - Data

= 1200 - 1176

= 24

MLEN = 24 / 4

= 6

Ans 14 First byte number can be calculated from the offset itself. If the offset is 120, that many times means that 120 x 8 i.e 960 bytes

Ans 15 Value of header length field of an IP packet can never be less than 5 because every IP datagram must be of atleast a bare header that has a fixed size of 20 bytes.

Ans 16 field = 7 , Base header = 20, Total bytes = 8

Ans 17 option field = 20 , total header length = 40

HLEN field = total number of bytes in header / 4 = 10

Ans 18 36 bytes ⇒ 36-20 ⇒ 16

Ans 19 Header length is 20; Total length is 1024 + 20 = 1044

Ans 20 The identification field is incremented for each non fragmented datagram

Ans 21 The M bit is zero, this means that the datagram is either the last fragment or he it is not fragmented at all. Since the offset is 0; it cannot be the last fragme of fragmented datagram.

Ans 22 The offsets field show the offset from the beginning of original datagram in multiple of 8 bytes and offset of 100 indicators that there were 800 bytes of data sent before the data in this fragment.

Ans 23

Hlen = 5 | Service = 0

ver = 4

Total length = 84

Identification = 3

Flags and Fragmentation = 0

offset = 0

Time to live = 32

Protocol = 6

CheckSum = 0x 5850

Ans 24

Datasize = 200 - 20 = 180 bytes

offset = 200 × 8 = 1600

The number of first byte = offset value = 1600

The number of last byte = offset value + datasize - 1
= 1779

M = 0 offset ≠ 0	Then it is last fragment.