BRAC UNIVERSITY
Department of Computer Science and Engineering
CSE421: Computer Networking (Section 11)

Quiz: 04 **Total Marks: 10**
Summer 2025 **Time: 10 minutes**

Name:	ID:	Section:

Question 1:

Given, after fragmentation, the data size of the last packet (of 299 packets) is 139 bytes. If the MTU of the network is 1545 with a header size of 65 bytes,

a. What's the packet size of the original datagram? [4]
b. What's the offset value of the 2nd last packet if the initial byte number is 72? [4]
c. What's the MF flag value of the 2nd last packet? [2]

Answer:

Packets =299

Data size of the Last packet = 139 bytes

MTU= 1480+65 = 1545

a) Packet size = (298 * 1480) + 139 + 65 = 441,244 bytes

b) Initial Byte Number = 72 / 8 = 9

297 * 1480/8 + 9 = 54,954

c) 1

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Question 1: **[10 Points]**

A network administrator uses the **ipconfig** command to generate the following output on a computer.

```
Ethernet adapter Ethernet:
IPv4 Address. . . . . . . . . . . : 172.16.44.66
Subnet Mask . . . . . . . . . . . : 255.128.0.0
. . . . . .
```

a) Identify the network address of the network. [1]

b) Subnet the above network using VLSM for the following host configuration: a WAN link, a switched network connected to 4 routers, 3000, 1500, 6. [9]

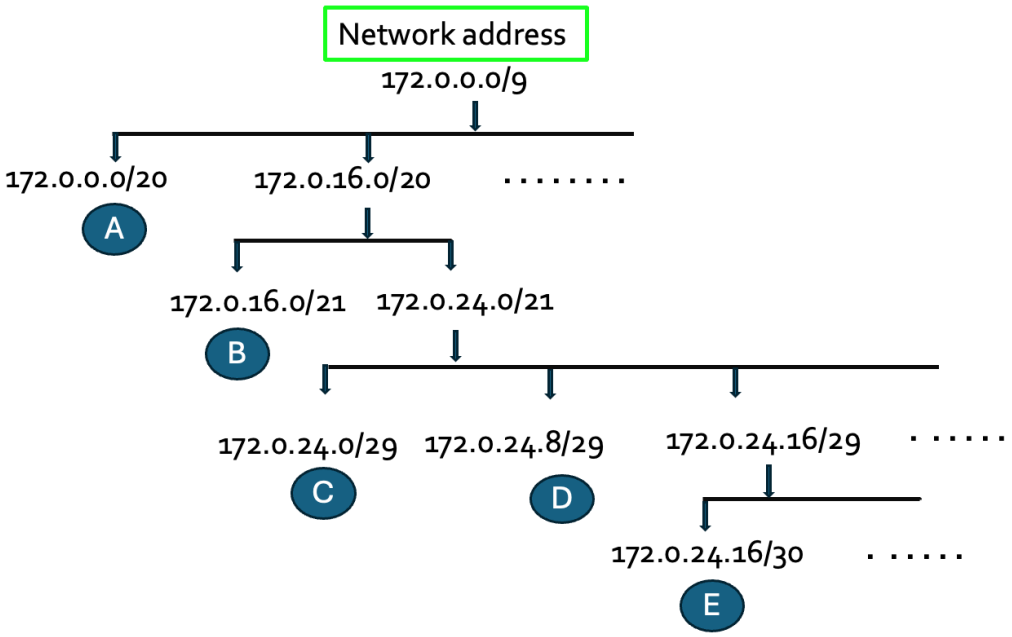
Answer:

```
IPv4 Address. . . . . . . . . . . : 172.16.44.66
Subnet Mask . . . . . . . . . . . : 255.128.0.0
```

a) Network address . . . . . .: 172.0.0.0/9 (AND operation)

b)

Network Name	Host requirement	+2	IP Block size	Host bits required	Network bits required	Sub-Network address
A	3000	3002	4096	12	20	172.0.0.0/20
B	1500	1502	2048	11	21	172.0.16.0/21
C	6	8	8	3	29	172.0.24.0/29
D	4	6	8	3	29	172.0.24.8/29
E	2	4	4	2	30	172.0.24.16/30



BRAC UNIVERSITY
Department of Computer Science and Engineering
CSE421: Computer Networking (Section 12)

Quiz: 04 **Total Marks: 10**
Summer 2025 **Time: 10 minutes**

Name:	ID:	Section:

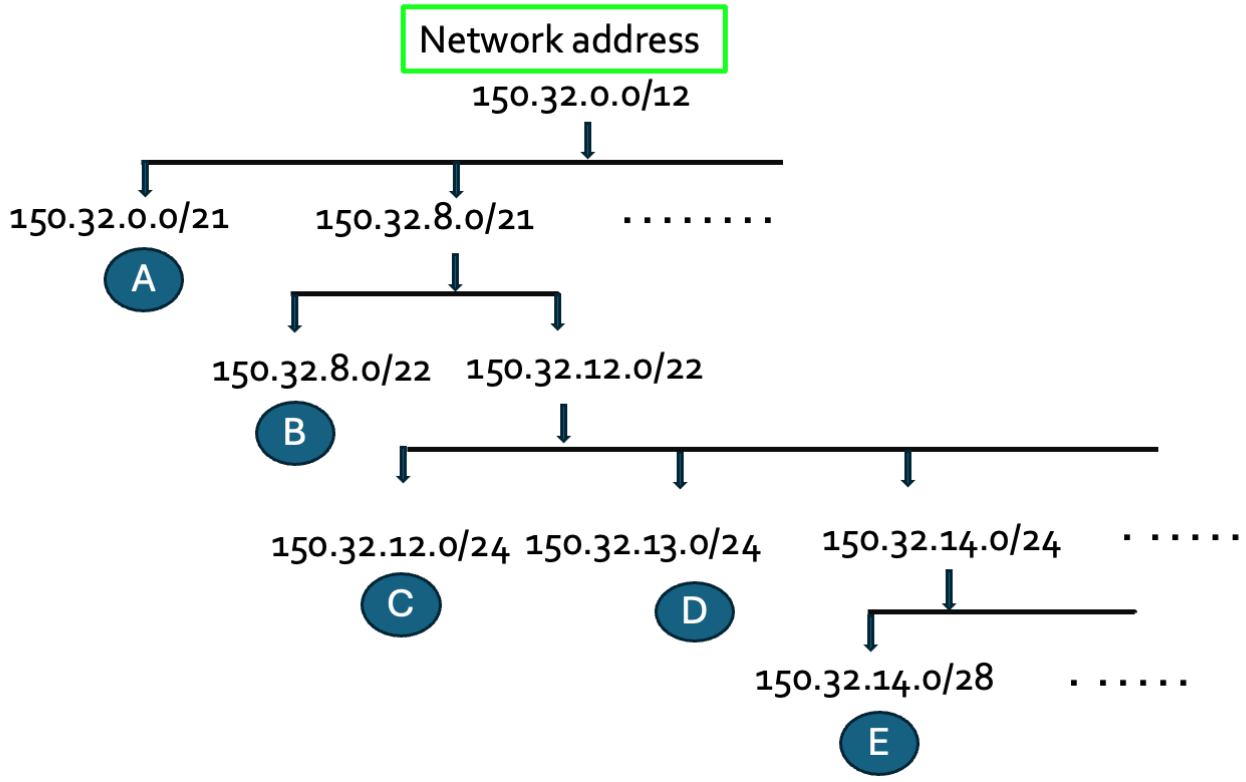
Question 1: **[10 Points]**

You want to redesign the subnetting of your office for more efficient use of IPs. Given your computer has an IP address of 150.33.4.2/12, find out your network address and then use VLSM to efficiently create subnetworks for host requirements of 2020, 1020, 250, 250 and a switched network which is connected to 7 routers.

Ans: Network Address:150.33.4.2/2

```
IPv4 Address. . . . . . . . . . . : 150.33.4.2
Subnet Mask . . . . . . . . . . . : 255.240.0.0
Network address . . . . . .:150.32.0.0/12 (AND operation)
```

Network Name	Host requirement	+2	IP Block size	Host bits required	Network bits required	Sub-Network address
A	2020	2022	2048	11	21	150.32.0.0/21
B	1020	1022	1024	10	22	150.32.8.0/22
C	250	252	256	8	24	150.32.12.0/24
D	250	252	256	8	24	150.32.13.0/24
E	7	9	16	4	28	150.32.14.0/28



Department of Computer Science and Engineering
CSE421: Computer Networking (Section 12)

Quiz: 04 **Total Marks: 10**
Spring 2025 **Time: 10 minutes**

Name:	ID:	Section:

Question 1:

Given, after fragmentation, the packet size of the last packet (of 189 packets) is 239 bytes. If the MTU of the network is 1535 with a header size of 55 bytes,

a. What's the data size of the original datagram? [4]
b. What is the offset value of the 3rd last packet if the initial byte number is 160? [4]
c. What's the MF flag value of the 2nd packet? [2]

Answer:

Packets =189

Data size of the Last packet = 239 bytes

MTU= 1480+55 = 1535

a) (188 * 1480) + 239 = 278,240 + 239 = 278,479 bytes

b) IBN = 160 / 8 = 20

186 * 1480/8 + 20 = 34,410 + 20 = 34,430

c) 1