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Academic Year 2025-2026

Tutorial 1 / Network Architecture / M1 CYSIA

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Exercise 1

Let the following 3 network addresses be :
— 204.160.241.93
— 138.96.32.3
— 18.181.0.31

1. Which class does each of these network addresses belong to ?
2. How many host addresses are associated with each of these network addresses ?

Exercise 2

A and B are two users of the same company. User A has the address 143.27.102.101 and reads in the configuration file of his workstation (for example, using the ipconfig or ifconfig command) : Subnet mask : 255.255.192.0, and default gateway address : 143.27.105.1

1. What is the subnet address to which A belongs ?
2. What is the broadcast address on this subnet ?

User B has the address 143.27.172.101 and likewise reads : subnet mask : 255.255.192.0

3. Is B on the same subnet as A ?
4. Can B use the same default gateway address as A ?

Exercise 3

A company needs 600 addresses. Which of the following sets of class C blocks can be used to form a supernet for this company ?

1. 198.47.32.0 198.47.33.0 198.47.34.0
2. 198.47.32.0 198.47.42.0 198.47.52.0 198.47.62.0
3. 198.47.31.0 198.47.32.0 198.47.33.0 198.47.34.0
4. 198.47.32.0 198.47.33.0 198.47.34.0 198.47.35.0

Exercise 4

We need to create a supernetwork from 16 class C blocks. What is the mask of the supernet ?

Exercise 5

Find the aggregated route of the following networks :
— 200.1.2.0/25
— 200.1.2.128/26
— 200.1.2.192/26

Exercise 6

— Complete Table 1 :

Table 1 – Table to complete

IPv_4 address	124.23.12.71	124.12.23.71	194.12.23.71
Subnet mask	255.0.0.0	255.255.255.0	255.255.255.240
Class			
Network address of the machine			
Broadcast address in the network			
Subnet address of the machine			
Broadcast address in the subnet			

Exercise 7

Given the IPv_4 address 172.16.12.54 with the mask 255.255.255.240, among the following addresses, which ones are valid host addresses on the same network ?

1. 172.16.12.64
2. 172.16.12.57
3. 172.16.12.49
4. 172.16.12.48
5. 172.16.12.63
6. 172.16.12.45

Exercise 8

Consider a company with the range 10.0.0.0/16. It has 1000 technicians, 200 salespeople, and 20 managers.
— Propose a VLSM addressing plan for this company.