

## Subnetting Lab – Section 1

Folks! For all questions, we expect from you your **CALCULATIONS** as a proof of your answers. Photos of your calculations from your notebooks are very welcome ☺. Plain answer for a question without calculation **gives you only 20%** of whole point for this question.

!!! If you do not provide your calculation in 0a, your points for 0b will be zero.

Okay, let's GO! You can do it!

**0<sup>th</sup> question. You have an IP address and a mask: 35.97.88.137 /28.**

**0a:** Write down all possible subnets of this network in the following format:

*n) [network address] ---- [broadcast address] --- [subnet mask],*

where "n" (number of a subnet) starts from 0.

**0b:** to which subnet belongs given IP address? (Write number)

**1<sup>st</sup> question.** I want to move to new wider office with increased number of stuff. The design of 3 subnets with 45 available IP addresses (part "a") or 5 subnets with 28 available IP addresses (part "b") would suit me. What can you offer to me?

P.S. I expect the same format of your answer as in **0a** above.

P.S.S. Choose any IP you like, but first octet must not exceed 223. (reserved addresses for multicast and research purposes)

**a)**

**b)**

**2<sup>nd</sup> Question.** You are given an IP address of some PC. It is 174.56.221.29/21. Give me network, broadcast addresses and subnet mask for it. (Do not forget to provide CALCULATIONS)

**3<sup>rd</sup> Question.** Pick any IP you like, following these rules:

- First octet must not exceed 223;
- All octets must be bigger than 97;
- Difference between octets must be bigger than 27;
- Third and Fourth octets must be odd;

Your mask is /20. As you chose your IP, give me network, broadcast addresses and subnet mask for it. Format should be as in **0a**. (Do not forget to provide CALCULATIONS). IF you break one of the rules above, you will get zero. Be, careful.

**4<sup>th</sup> Question.** You are a system administrator for a new company. Your boss wants from you 4 different subnets for 4 floors. Your network is 10.144.87.0.

1<sup>st</sup> floor – IT department, 16 PCs.

2<sup>nd</sup> floor – Accounting, 35 PCs.

3<sup>rd</sup> floor – Sales department, 46 PCs.

4<sup>rd</sup> floor – Administration, 59 PCs.

For each floor, provide a line with the following format:

*"[N floor] – [name of the department] – [network address] – [1<sup>st</sup> usable host ip address] – [last usable host ip address] – [broadcast address] – [subnet mask]"*,

Where "N" is number of the floor.

(Do not forget to provide CALCULATIONS for each floor)