ANNEX A · PRACTICAL 3.1 · SUBNETTING BY HAND

Name: _____ Group G = _____ Date: _____

Individual, on paper, pencil. No computer, no phone, no AI. Use **your own group number** wherever you see **G**. The block-size table stays on the board. Hand in this sheet at the end of the class. **Marks: A 3 + B 2 + C1 3 + C2 2 = 10.**

WARM-UP **In pairs, with the teacher (not marked)**

Address	Block	Network	First – last host	Broadcast	Hosts
192.168.10.45/27					
10.G.0.193/26					
10.4.0.50/28					
10.G.20.95/27					

PART A **Analyse each address (0.5 points per row)**

Address	Mask	Network	First – last host	Broadcast	Hosts
1 10.G.0.77/24					
2 10.G.10.200/26					
3 10.G.20.130/27					
4 192.168.1.99/28					
5 10.G.0.14/30					
6 172.16.37.5/20					

DONE WHEN every row has five answers and each network address is a multiple of its block size.

PART B **Are the two machines in the same subnet? (0.5 points each: answer + reason)**

Pair	Yes / No	Reason: the subnet of each one
1 10.G.0.60/26 and 10.G.0.70/26		
2 10.G.20.33/27 and 10.G.20.62/27		
3 192.168.1.127/25 and 192.168.1.129/25		
4 172.16.4.1/22 and 172.16.7.254/22		

DONE WHEN each reason names two subnets (or one, twice).

PART C1 **Design: four equal subnets (3 points)**

Tramuntana Apps wants one subnet for each of `dev`, `design`, `admin` and guests. Split your LAN `10.G.0.0/24` into **four equal subnets**, in that order. In each subnet the router takes the first host address.

New prefix: `/`____ Mask: _____ Block size: _____

Department	Subnet (address/prefix)	Router	Last host	Broadcast	Hosts
dev					
design					
admin					
guests					

DONE WHEN the four subnets touch each other without overlapping and the last broadcast is `10.G.0.255`.

PART C2 **Design: subnets of different sizes (2 points)**

A better plan: give each department only what it needs. Starting at `10.G.0.0`, biggest first, one after the other, choose the **smallest** subnet that fits: `dev` 50 hosts · `design` 25 hosts · `admin` 10 hosts · a link between two routers, 2 hosts.

Need	Subnet (address/prefix)	Mask	First – last host	Broadcast	Hosts
dev, 50					
design, 25					
admin, 10					
router link, 2					

DONE WHEN each subnet starts right after the broadcast of the one before, and at a multiple of its own block size.

EXIT TICKET **Circle one answer. Alone, no notes.**

1. Block size (addresses) of a `/27`?
a) 27 **b)** 32 **c)** 30 **d)** 64

2. Network address of `10.5.0.66/26`?
a) `10.5.0.0` **b)** `10.5.0.66` **c)** `10.5.0.60` **d)** `10.5.0.64`

3. Broadcast address of `10.1.0.100/26`?
a) `10.1.0.127` **b)** `10.1.0.255` **c)** `10.1.0.128` **d)** `10.1.0.100`

4. You need 4 equal subnets from a `/24`. New prefix?
a) `/25` **b)** `/28` **c)** `/26` **d)** `/22`

5. Can `10.1.0.127/25` be configured on a PC?
a) Yes, it is a normal host address **b)** No: it is the network address
c) No: it is the broadcast address **d)** Yes, but only on the router