



# UTM

UNIVERSITI TEKNOLOGI MALAYSIA

## **SECR1213 - TASK 5: IP ADDRESSING SCHEME**

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**GROUP NAME: ELEVEN-NINE**

1. **What is the total identified areas in the building? (Total areas = number of labs + rooms + common areas + etc.)**

Total subnet needed = Total identified areas = 8

2. **What is the number of reserved bits from the host for the identified subnets? Additionally, identify the number of extra subnets, if applicable**

**Number of reserved bits:**

To create 8 subnets,  $2^3 = 8$

Therefore, number of reserved bits = 3.

**Number of extra subnets:**

Total subnets possible =  $2^3 = 8$ .

Total subnets needed = 8.

Extra subnets =  $8 - 8 = 0$ .

3. **Given your assigned IP address, clearly show the network and host portions, and the reserved/borrowed bits for your subnets.**

**Assigned IP Address:** 192.18.0.0/8.

**Borrowing 3 bits:** New subnet mask is 192.18.0.0/11.

Network portion: First 11 bits.

Host Portion: Remaining 21 bits.

4. **What is your custom subnet mask?**

**Subnet mask: /11.**

= 11111111. 11100000. 00000000. 00000000

= 255. 224. 0. 0.

## 5. Calculation and Tabulation for IP division

IP Address: 192.18.0.0

Subnet mask: 255.224.0.0 (/11)

### Calculation of Block Size:

The block size for the third octet is calculated:

$256/(2^{\text{borrowed bits in}})$

$= 256/(2^3)$

$= 32$

Hence, each subnet will **increase the 3rd octet by 32.**

### Determining IP address range:

From this we can determine the first address (Network Address) of each subnet.

Subsequently, the last address (Broadcast address) of each subnet can also be determined.

Subnet	First address (Network Address)	Last address (Broadcast Address)
Subnet 1	192.18.0.0	192.18.31.255
Subnet 2	192.18.32.0	192.18.62.255
Subnet 3	192.18.64.0	192.18. 95.255
Subnet 4	192.18.96.0	192.18.127.255
Subnet 5	192.18.128.0	192.18.159.255
Subnet 6	192.18.160.0	192.18.191.255
Subnet 7	192.18.192.0	192.18.223.255
Subnet 8	192.18.224.0	192.18.255.255

Hence, The usable IP address range is between the Network Address and Broadcast Address of each subnet. The full table is as shown below.

<b>Subnet</b>	<b>Area</b>	<b>Network address</b>	<b>Broadcast address</b>	<b>Range of Usable Addresses</b>
1	Student Lounge	192.18.0.0	192.18.31.255	192.18.0.1 - 192.18.31.254
2	General Purpose Lab 1	192.18.32.0	192.18.63.255	192.18.32.1 - 192.18.63.254
3	General Purpose Lab 2	192.18.64.0	192.18.95.255	192.18.64.1 - 192.18.95.254
4	Video Conferencing Room	192.18.96.0	192.18.127.255	192.18.96.1 - 192.18.127.254
5	Reception	192.18.128.0	192.18.159.255	192.18.128.1 - 192.18.159.254
6	Hybrid Classroom	192.18.160.0	192.18.191.255	192.18.160.1 - 192.18.191.254
7	Cisco Network Lab	192.18.192.0	192.18.223.255	192.18.192.1 - 192.18.223.254
8	Embedded Lab	192.18.224.0	192.18.255.255	192.18.224.1 - 192.18.255.254

**Self-evaluate and include projected marks based on the rubric.**

TASK 5	
ITEM	MARKS
<b><i>IP Addressing</i></b>	
Use correct network address for group	1
Workings is provided clearly and labelled	4
IP division is appropriate and logical	1
Complete detail of all IP assignation for all labs and room	4
<b>TOTAL</b>	<b>10</b>

The total marks expected is 10.

MEETING MINUTES TASK 5:

DATE	26 DEC 2024 8AM
LOCATION	Student Lounge
AGENDA	Division of IP addresses
MEETING MC	Muntasir Rahaman

**ATTENDANCE:**

Muhd Affiq Firdaus Bin Saidi Ali Firdaus	8AM - 12PM
Muntasir Rahman Sirkhazi (A23MJ0013)	8AM - 12PM
MOHAMED G. S. (A23MJ0009)	8AM - 12PM
Maarof Saqr Yousef (A23MJ4006)	8AM - 12PM
Helal, Muhieddin Ibrahim (A23MJ4004)	8AM - 12PM

**MINUTES:**

NO.	ITEM DISCUSSED	IDEAS/SUGGESTION AND PERSON GIVING IT	PERSON IN CHARGE AND DATE
1	Defining the objectives and steps to completing the task	Mohamed and Affiq discussed the objectives and goals for the task.	Mohamed G.S., Affiq
2	Software to use	All Members unanimously agreed on using Google Docs to do the task	All Members
3	Revising/Referring to Chapter 4 of Netcom	All Members preemptively touched up on chapter 4 of Netcom to gain the understanding to do the calculations for this task	All Members
4	Calculations	Affiq and Muntasir worked together to calculate the IP address ranges used.	Affiq, Muntasir
5	Verification	Mohammed, Saqr, and Helal went through the entirety of the calculations to double-check and ensure it was correct	Mohammed, Saqr, and Helal
6	Tabulation	Affiq and Saqr tabulated the results in a table.	Affiq, Saqr