Family name: ..... First name: ..... Group: .....

ANSWER SHEET

Exercise 1

Question	**Answer**
How can we connect memory devices in order to enlarge the width?	
A memory has a depth of 32 Ki words. How many address lines does this memory have?	
A memory has a width of 16 bits and a capacity of 64 Kib. How many address lines does this memory have?	
A memory has a 4-bit data bus and a 15-bit address bus. In a power of two, what is the capacity in bits of this memory?	
An **M1** memory has an 8-bit data bus and a 16-bit address bus. Two **M1** memories are connected in series to build an **M2** memory. What is the size of the address bus of the **M2** memory?	
A microprocessor has a 24-bit address bus. Five address lines are used for selecting the devices. With the block address decoding, what is the maximum number of address lines that a device connected to this microprocessor can have?	
A microprocessor has a 20-bit address bus. Using the linear address decoding, we connect this microprocessor to the following devices. • a ROM device (15 address lines) • a RAM device (12 address lines) • a peripheral device (10 address lines) How many address lines are unused in the case of the RAM device?	

Exercise 2

Question	**Answer**
What is the depth of the ***m*** memory?	
What is the depth of the ***M*** memory?	
What is the number of address lines of the ***m*** memory?	
What is the number of address lines of the ***M*** memory?	
How many memory devices should be put in parallel?	
How many memory devices should be put in series?	
How many address lines are required to control the *CS* input of the memory devices?	
When the ***M*** memory is active, how many ***m*** memory devices are active simultaneously?	

Exercise 3

1. ROM: RAM: P1: P2:	2. Device-selection bits:

3. CS_{ROM} =	CS_{P1} =
CS_{RAM} =	CS_{P2} =

4.

Device	**Lowest Address**	**Highest Address**
ROM		
RAM		
P1		
P2		

Exercise 4

1. ROM : RAM : P1 : P2 :	2. Can we use the linear address decoding? (Yes or No) 3. Device-selection bits:

4. CS_{ROM} =	CS_{P1} =
CS_{RAM} =	CS_{P2} =

Device	5.		6.
	Lowest Address	**Highest Address**	**Number of Images**
ROM			
RAM			
P1			
P2			

Feel free to use the blank space below if you need to: