Helwan University
Faculty of Computers and Information

Department of Computer Science
Digital Design
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Homework 7

1- Given a 32 x 8 ROM chip with an enable input, show the external connections necessary to construct a 128 x 8 ROM with four chips and a decoder. Why the final output of ROM is not selected from the chips using a MUX?

2- Assume that a static memory cell-element is designed using S-R F/F, design this cell element to satisfy the following function table:

Select	Read/Write	Function	Output
0	X	No Op.	0
1	0	Write	0
1	1	Read	Cell Value

3- How many 128 x 8 RAM chips are needed to provide a memory capacity of 2048 bytes? Draw the connections indicating the address lines.

4- A computer uses RAM chips of 1024 x 1 capacity.

a. How many chips are needed and how should their address lines be connected to provide a memory capacity of 1024 bytes?

b. How many chips are needed to provide a memory capacity of 16K bytes? Draw a block diagram to illustrate your connections.