



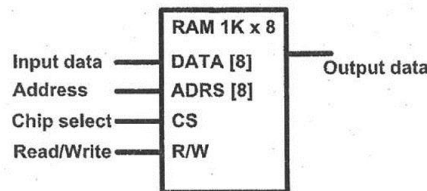
The maximum mark for the examination paper is 60 marks, and the mark obtainable for each part of a question is shown in brackets alongside the question.

**Instructions to the candidates:**

- ☉ Clarify your answer with the suitable sketches as you can.
- ☉ Please use a pen or heavy pencil to ensure legibility.
- ☉ Assume any missed data reasonably.
- ☉ Please attempt all questions.

**QUESTION NUMBER ONE [25 MARKS]**

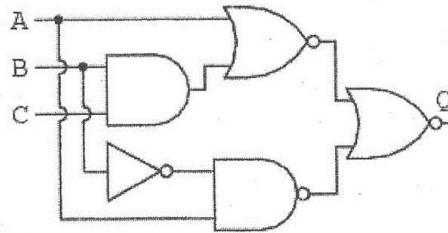
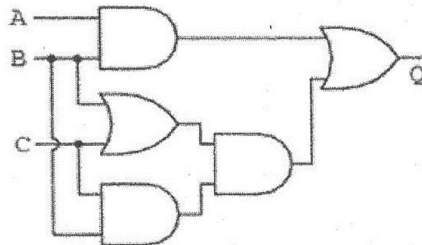
1. What are the system buses? Which bus controls how much memory you can have? Which control signal causes the memory to perform a read operation? [4 Marks]
2. Sketch a logic circuit diagram for the binary storage cell. Then, differentiate between a static random access memory (SRAM) and a dynamic random access memory (DRAM)? [6 Marks]
3. Suppose that we want to construct 4KB x 8 RAM by using 1 KB x 8 RAM chips illustrated in below figure. Draw the block diagram that illustrates the interconnection of the necessary number of 1 KB x 8 RAM chips to form a 4 KB x 8 RAM. [5 Marks]



4. What is the binary equivalent of the following decimal number 51.375? Convert the following binary number into octal number 111001.0011. [4 Marks]
5. Given  $M=1010100$  and  $N=1000011$ , perform the subtraction on the given binary number using 2's complement of the subtrahend. Hereafter, if  $M = 357$  and  $N = 432$ , perform the signed BCD subtraction on the given unsigned decimal numbers. [6 Marks]

**QUESTION NUMBER TWO [25 MARKS]**

1. Provide diagrams showing how to implement OR, AND, and NOT gate using only NAND gates. [5 Marks]
2. Simplify the output of the following circuits using Boolean algebra. [6 Marks]



3. The solutions to the quadratic equation  $X^2 - 11X + 22 = 0$  are  $X = 3$  and  $X = 6$ . What is the base of the numbers?

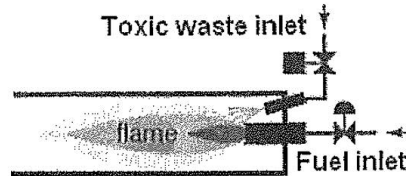
[3 Marks]

4. Explain how the computer networks support the way we live? After that, classify with the aid of a sketch the computer networks based on their topology.

[6 Marks]

5. Using Boolean algebra, design a flame detection circuit for a toxic waste incinerator. So long as a flame is maintained in the incinerator, it is safe to inject waste into it. The waste valve is opened if at least two out of the three sensors show good flame.

[5 Marks]



**QUESTION NUMBER THREE [10 MARKS]**

1. Write HTML code line to show different attribute of Font tag.

[2 Marks]

2. Create a web page, containing a nested order list showing the content of any textbook.

[2 Marks]

3. Which tag will insert a blank line before the next line of text?

[1 Marks]

4. Write HTML code to create a form given in figure.

[5 Marks]

Insert your basic informations

First Name:	Family Name:
Gender: <input checked="" type="radio"/> Male <input type="radio"/> Female	
Your higher certificates: <input type="checkbox"/> B.s.c <input type="checkbox"/> M.s.c <input type="checkbox"/> Ph.D	
Birthday information: Month: May ▾ Day: Year:	
User ID:	User Password:
Enter your comments	
<input type="button" value="send my form"/>	<input type="button" value="cancel"/>