1. A = 53 and B = 29, and they are decimal numbers.

   1-a) Convert the numbers to binary form first and make this calculation in term of 2's complement arithmetic:
   S = B – A

   1-b) Convert the numbers to BCD (Binary Coded Decimal) form and make this calculation.
   S = A + B

   1-c) Write a program for BCD summing of S = A + B. Fetch the value of A from memory
   $100 and, B from memory $101 and, write the S into memory $103.

1-a)   A=53 >> 00110101   B=29 >> 00011101
       2's complement of A is 11001011

       00011101
       11001011

       11101000   : S = B-A

1-b)   A :   0101 0011
       B :   0010 1001
                   1100   > 9
               1 0110   2's complement of 1010

               1000 0010

1-c)   Yük A,<$100>
               Yük B,<$101>
               Top A,B
               DYY ileri   if there is no half carry
               Add A,$16
       İleri   Yaz A,<$103>

3   A program will be written for a simple encryption algorithm. The steps of the algorithm is given as follows:

Step -1: The character will be fetch from memory location $100. The character looks
    like ;

D7	D6	D5	D4	D3	D2	D1	D0

Step -2: Move some bits of the character like this.

D5	D4	D7	D6	D1	D0	D3	D2

Step-3: Move some bits of the character like this.

D1	D0	D3	D2	D5	D4	D7	D6

Step-4: XOR the last form of character with $AA and store the result into memory location $200.

3)   Yük A,<$100>
                Akt B,A
                Ve A,%00110011
                Sol A
                Sol A
                Ve B,%11001100
                Sağ A
                Sağ A
                Veya A,B
                Dğş A
                Yada A,$AA
                Yaz A,<$200>

2. 2K*8 memory chips are given. You are going to design a memory for generic microcomputer. The capacity of memory will be 16K*8 and starting address will be $0000. The data bus of microcomputer is 8 bits and address bus is 16 bits.

2-a) Design the memory.
2-b) If you need more 16K*8 continuous memory, what you should do?

Data Bus

M-8	M-7	M-6	M-5	M-4	M-3	M-2	M-1
$3FFF	$37FF	$2FFF	$27FF	$1FFF	$17FF	$0FFF	$07FF
$3800	$3000	$2800	$2000	$1800	$1000	$0800	$0000

R/W   CS   R/W   CS   R/W   CS   R/W   CS   R/W   CS   R/W   CS   R/W   CS   R/W   CS

Addres Bus
A0-A10
R/W

A15
A14   CS

A11
A12   3 to 8
A13

A15
A14   CS   For next 16 K*8 Memory