MICROPROCESSOR SYSTEMS 3rd / May / 2001

1- Calculate the value of A (Accumulator) by using hexadecimal number system at the end of logical operations.

a)
```
MOV  A,#11110010B     ;  A=(11110010)2
ORL  A,#00000111B     ;  ⇒ A= (???)16
```

b)
```
MOV  A,#2FH           ;  A=(2F)16
ANL  A,#00001111B     ;  ⇒ A= (???)16
```

c)
```
MOV  A,#65D           ;  A=(65)10
INC  A
ORL  A,#00001111B     ;  ⇒ A= (???)16
```

d)
```
MOV  A,#3BH           ;  A=(3B)10
RL   A
XRL  A,#0FH           ;  ⇒ A= (???)16
```

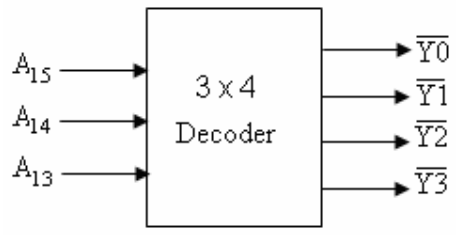
1- Most significant 3bits of the address line in a 64Kbyte memory system is connected through a 3x4 decoder.

a) Define the logical functions of the outputs $\overline{Y0}$, $\overline{Y1}$, $\overline{Y2}$, $\overline{Y3}$ for the memory component activation table shown below.

0000H-3FFFH Device connected at $\overline{Y0}$ will be active (Active low)
4000H-BFFFH Device connected at $\overline{Y1}$ will be active (Active low)
C000H-DFFFH Device connected at $\overline{Y2}$ will be active (Active low)
D000H-FFFFH Device connected at $\overline{Y3}$ will be active (Active low)

b) Find the minimized logical expression

c) Draw the circuit schema only by using logical TTL gates, given in limited datasheets



2- An 8 bit CPU having 64Kbytes addressing capability will be connected to a memory block containing 1 piece of 27C128 EPROM, 1 piece of 62C256 static RAM, 1 piece of 28C64 EEPROM and an address decoder unit. EPROM will contain the program memory and the initial address after the reset indicates first address of this device (0000H)
Draw the circuit schema and the related memory-addressing map of the described system using 74LS138 as decoder.