MICROPROCESSOR SYSTEMS 24th / April / 2003

1- Calculate the value of A (Accumulator) by using hexadecimal number system at the end of following series of logical operations. (Please, place results in a box)

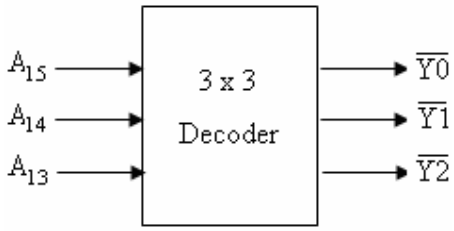
a)
```
MOV   A,#45H          ;  A=(45)16
ANL   A,#12D
ORL   A,#03H          ;  ⇒ A= (???)16
```

b)
```
MOV   A,#126D         ;  A=(126)10
MOV   R0,#01111111B   ;  R0=(01111111)2
INC   A
XRL   A,R0            ;  ⇒ A= (???)16
```

c)
```
      MOV   A,#100D       ;  A=(100)10
      MOV   R0,#3
LOOP: RR    A
      ANL   A,#96D
      DJNZ  R0,LOOP
                          ;  ⇒ A= (???)16
```

2- In a 64Kbyte memory system, most significant 3bits of the address lines are connected to the activation inputs (CE) of the memory components through a 3x3 decoder. Find the minimized logical expressions of the outputs $\overline{Y0}$,$\overline{Y1}$ and $\overline{Y2}$ with respect to memory component activation table shown below and draw the related logical circuit schema.

0000H-1FFFH Device connected at $\overline{Y0}$ will be active (Active low)
2000H-5FFFH Device connected at $\overline{Y1}$ will be active (Active low)
6000H-9FFFH Device connected at $\overline{Y2}$ will be active (Active low)



3- 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 of the memory block and the related memory-addressing map of the described system using 74HC138 as decoder.

1- a) 10P b)10P c)15P 2-30P 3-35P