

### AQ1:

```

MOV SI,2200H
MOV DI,2300H
MOV CX,32H
BACK: MOV AL,[SI]
      AND AL,01h
      JNZ SKIP
      MOV [DI],AL
      INC DI
SKIP:  INC SI
      LOOP BACK

```

### AQ2

```

mov sum,0
mov cx,1
whileSum:  cmp    sum, 1000      ;sum < 1000?
           jnl    endWhileSum ; exit if not
           cmp    cx, 50      ; count <= 24
           jnle   endWhileSum ; exit if not
           add    sum,cx      ; body of loop
           inc    cx
           jmp    whileSum    ; go check condition again
endWhileSum:

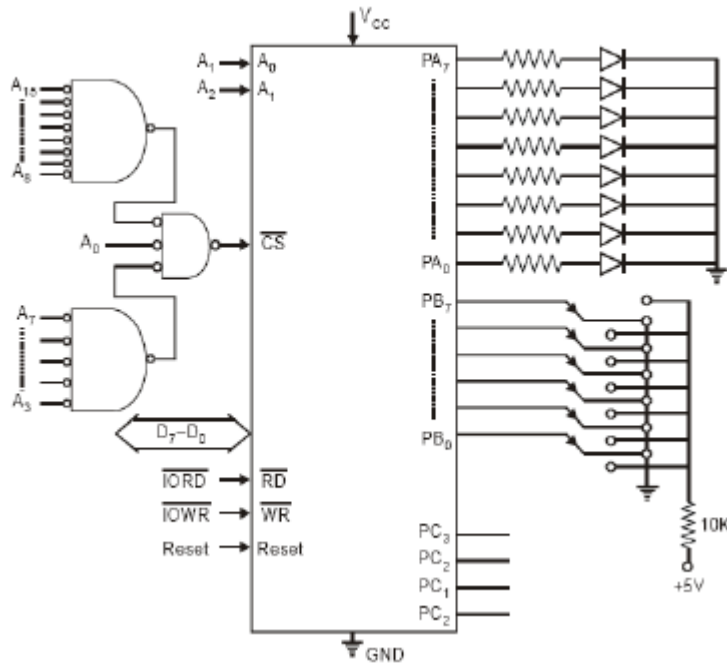
```

### AQ3

**Solution.** The control word is decided as given as follows :

B7	B6	B5	B4	B3	B2	B1	B0	Control word
1	0	0	0	0	0	1	0	= 82 H
I/O mode	Port A in mode 0		Port A, O/P	Port C, O/P	Port B, mode 0	Port B, I/P	Port C, O/P	

The interface circuit is as shown below :



82H is the control word. The control word format for BSR mode is as shown ahead :

8255 ports	I/O Address lines																Hex port address
	A <sub>15</sub>	A <sub>14</sub>	A <sub>13</sub>	A <sub>12</sub>	A <sub>11</sub>	A <sub>10</sub>	A <sub>9</sub>	A <sub>8</sub>	A <sub>7</sub>	A <sub>6</sub>	A <sub>5</sub>	A <sub>4</sub>	A <sub>3</sub>	A <sub>2</sub>	A <sub>1</sub>	A <sub>0</sub>	
Port A	0	0	0	0	0	1	1	1	0	1	0	0	0	0	0	0	0740H
Port B	0	0	0	0	0	1	1	1	0	1	0	0	0	0	1	0	0742H
Port C	0	0	0	0	0	1	1	1	0	1	0	0	0	1	0	0	0744H
CWR	0	0	0	0	0	1	1	1	0	1	0	0	0	1	1	0	0746H

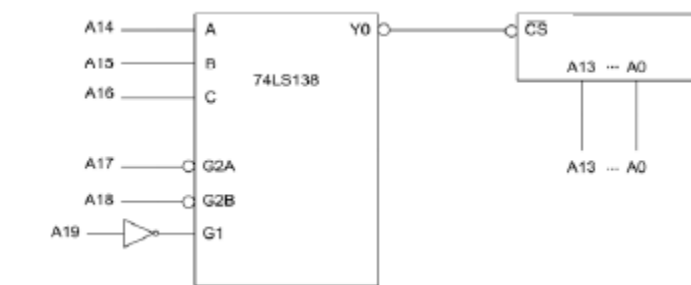
The ALP for the problem is shown below :

```

MOV DX, 0746H;   Initialise CWR with
MOV AL, 82H;     Control word 82H
OUT DX, AL;
SUB DX, 04;      Get address of port B in DX
IN AL, DX;       Read port B for switch
SHL DX, 02;      Positions into AL and get port A address
MOV BL, 00H;     Initialise BL for switch count
MOV CH, 08H;     Initialise CH for total switch number

Label 1 :       ROL AL;           Rotate AL through carry to check
                JNC Label 2
                INC BL
Label 2 :       DEC CH
                JNZ Label 1
                MOV AL, BL
                ADD DX, 0H
                OUT DX, AL
                HLT
    
```

**Q4**



Y0: 0000:03FFF  
Y1: 0400:07FFF  
Y2: 0800:0BFFF  
Y3: 0C00:0FFFF  
Y4: 1000:13FFF  
Y5: 1400:17FFF  
Y6: 1800:1BFFF  
Y7: 1C00:1FFFF

**Q5**

```

MOV SI,0300H
MOV BL,10
CALL SUMP
MOV BH,AL
MOV SI,0050H
MOV BL,100
CALL SUMP
MOV AH,0
DIV BH
MOV [0400H],AL
MOV [0401H],AH
INT 20H
SUMP: MOV DI,SI
MOV CL,BL
MOV AL,0
ALPHA: ADD AL,[DI]
INC SI
DEC CL
JNZ ALPHA
RET

```

*Good Luck*