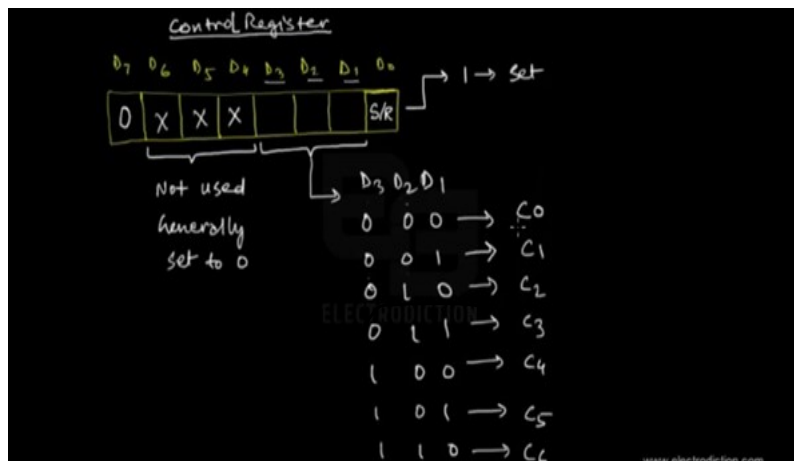


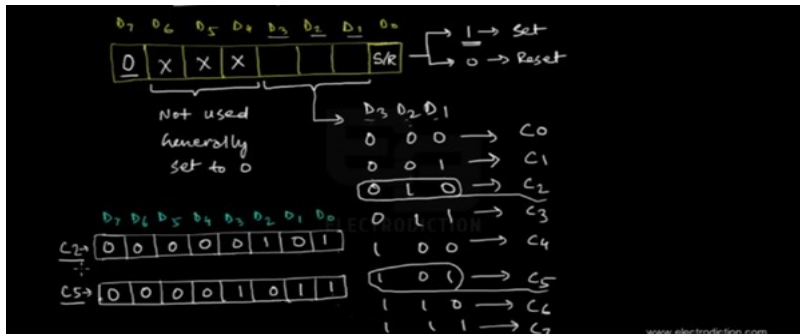
## CAT 2 Revision

operate 8255A in BSR mode & write a program to do the following.

\* Set lines  $C_2$  &  $C_5$

\* Reset lines  $C_2$  &  $C_5$  after 0.3 sec



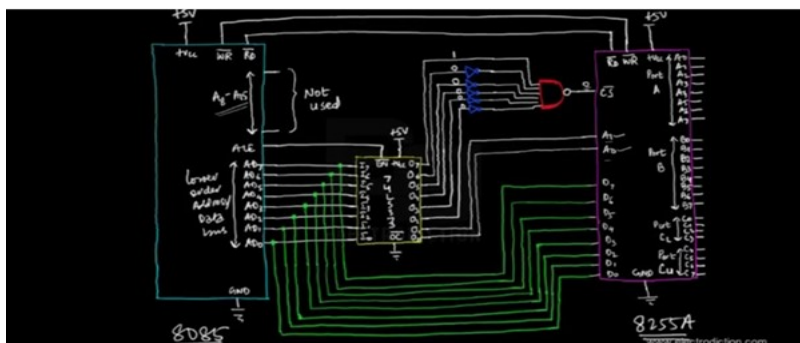


$C_2 \rightarrow 05H$   
 $C_5 \rightarrow 0BH$

$C_2 \rightarrow 04H$   
 0000 0100

1010 (A)  
 1011 B

$C_5 \rightarrow 1010$   
 0000 1010  
 0AH



CS	A15	A14	A13	A12	A11	A10	A9	A8	Port address hex code
0	1	0	0	0	0	0	0	0	= 80H → Port A
0	1	0	0	0	0	0	0	1	= 81H → Port B
0	1	0	0	0	0	0	1	0	= 82H → Port C
0	1	0	0	0	0	1	1	1	= 83H → Control register
1	X	X	X	X	X	X	X	X	→ 8255A not selected

$MVI A, 05H$  // 05H → control word to set C2, load 05H into A  
 $OUT 83H$  // 83H → port address of control register, send 05H in control register  
 $MVI A, 0BH$  // 0BH → control word to set C5, load 0BH in A  
 $OUT 83H$  // send 0BH in control register  
 $CALL Delay$

→ 83H

```

MVI A, 04H // 04H → control word to reset C2 load C2 in A
OUT 83H

MVI A, 0AH // 0AH → control word to reset C5 load C5 in A
OUT 83H

```

```

0012 83
0013 76 HLT // end of main program
Subroutine Delay program
2000 21 Delay: LXI H, FFFFH // 6MHz clock period ≈ 0.33µs
2001 FF
2002 FF
2003 2B JI: DCX H
2004 C2 JNZ 2003H (J1)
2005 03
2006 20
2007 C9 RET

```

INZ → 10T } 16T = 16 × 0.33 = 5.28µs  
 DCX → 6T }  
 1 - LXI → 10T → 10 × 0.33 = 3.3µs  
 1 - RET → 10T → 10 × 0.33 = 3.3µs  
 3.3 + 3.3 = 6.6µs  
 5.28µs × 65535 = 0.344secs ≈ 0.3secs

0.33µs

00 00H

8086

T → state

oper

$$T = \frac{1}{f} = \frac{1}{\text{---}} = \text{---}$$

Assume selected counter is Counter-1, Mode for Square wave is Mode-3, Address for Counter 1 is 82H

Calculation of CWR:

0	1	1	1	0	1	1	1
---	---	---	---	---	---	---	---

CWR is (77H)

Calculation of count:

$$N = \frac{\text{Input clock frequency}}{\text{Output required frequency}}$$

$$N = \frac{1 \text{ MHz}}{1 \text{ KHz}} = 1000$$

```

Code SEGMENT
ASSUME CS: Code
MOV AL, 77H
OUT 86H, AL // Initialize Control Word = 0111 0111
Back: MOV AL, 00H
OUT 82H, AL // Lower byte of BCD count
MOV AL, 10H
OUT 82H, AL // Upper byte of BCD count
HLT
Code ENDS
END

```