

MECE 336 – WEEK 9 – LABORATORY SOLUTIONS

Problem 16

```
LIST P=16F84A;
INCLUDE "P16F84A.INC";
__CONFIG _CP_OFF&_WDT_OFF&_XT_OSC;
ORG 0;
clrf PORTB;
clrf PORTA;
;-----
    BSF STATUS, RP0;
    CLRF TRISB;
    CLRF TRISA;
    BSF TRISA, 2;
    BCF STATUS, RP0;
;-----

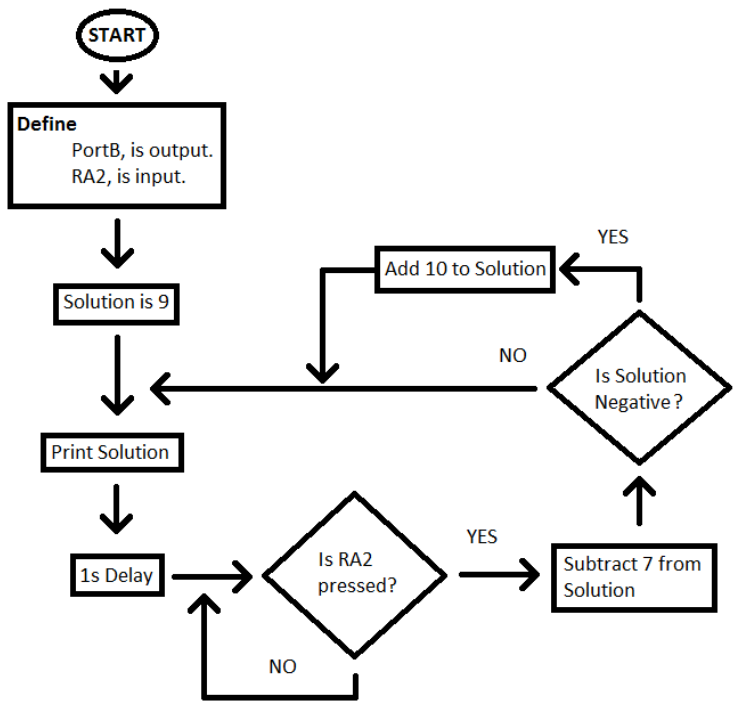
    MOVLW .9;
    CALL COMMON_CATHODE
    MOVWF PORTB
    LOOP
    GOTO LOOP

COMMON_ANODE;-----
    ADDWF PCL
    RETLW 0XC0;0
    RETLW 0XF9;1
    RETLW 0XA4;2
    RETLW 0XB0;3
    RETLW 0X99;4
    RETLW 0X92;5
    RETLW 0X82;6
    RETLW 0XF8;7
    RETLW 0X80;8
    RETLW 0X90;9

END
```

Problem 17

Flow – Chart



Code

```
LIST P=16F84A;
INCLUDE "P16F84A.INC";
__CONFIG _CP_OFF&_WDT_OFF&_XT_OSC;
ORG 0;
;-----DelayConfig-----
counter1 EQU 0x0c;
counter2 EQU 0x0d;
counter EQU 0x0e;
nlt1 EQU .250;
nlt2 EQU .131;
nlt EQU .10
;-----
SOL EQU 0X0F
clrf PORTB;
clrf PORTA;
;-----
    BSF STATUS, RP0;
    CLRF TRISB;
    CLRF TRISA;
    BSF TRISA,2;
    BCF STATUS, RP0;
;-----
;-----MainProgram-----
    MOVLW .9;
    MOVWF SOL
PRINT
    MOVF SOL
    CALL COMMON_CATHODE
    MOVWF PORTB
    CALL DELAY_1S
LISTEN
    BTFSS PORTA,2
    GOTO LISTEN

    MOVLW .7
    SUBWF SOL
    BTFSC STATUS,C
    GOTO PRESS
    MOVLW .10
    ADDWF SOL
    GOTO PRINT
;-----
;-----Subroutines-----
COMMON_CATHODE;-----
    ADDWF PCL
    RETLW 0X3F;0
    RETLW 0X06;1
    RETLW 0X5B;2
    RETLW 0X4F;3
    RETLW 0X66;4
    RETLW 0X6D;5
    RETLW 0X7D;6
    RETLW 0X07;7
    RETLW 0X7F;8
    RETLW 0X6F;9
;-----
DELAY_1S;-----
    MOVLW nlt
    MOVWF counter
    LOOP
    CALL Delay_100ms
    DECFSZ counter
    GOTO LOOP
    RETURN
;-----
Delay_100ms;-----
    MOVLW nlt1;
    movwf counter1;

    loop1;
    NOP;
    NOP;
    MOVLW nlt2;
    MOVWF counter2;

    loop2;
    DECFSZ counter2,1;
    GOTO loop2;
    NOP;
;-----
    DECFSZ counter1,1;
    GOTO loop1;
    NOP;
    return
;-----
;-----
end;
```