EELE-1232, Introduction to Microcontrollers, February 11th, 2022

Test#1, Total Mark: 21

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**1)** Answer the following questions: (2 points)

1. The PIC18 is a(n) 8-bit microcontroller.

1. Write a program to move 34H into WREG register.

org 0x00

goto start

Start:

movlw 0x34

bra $

1. The file register space in PIC18 can be a maximum of 4096 bytes.
2. “ADDWF PORTB, W” puts the result in WREG register

1. Write an assembly program which calculates S = 1 + 2 + ... + 100. Assume S is in address 0x20. (7 points)

S equ 0x20

counter equ 0x21

org 0x00

goto start

start:

clrf S

movlw .100

movwf counter,f

loop:

movf S

addwf counter, w

movwf S

decf counter

bnz loop

Bra $

1. Write an assembly program that reads from PORTA. If bit 5 of PORTA is high then it writes 4× PORTA in PORTB; otherwise, it writes PORTA+3 in PORTB. You cannot use multiply instruction in your program. (12 points)

temp equ 0x20

org 0x00

goto start

start:

bsf TRISA, 5

nop

clrf TRISB

btfss PORTA,5

bra thisiszero

movff PORTA, PORTB

call delay

movff PORTA, PORTB

call delay

movff PORTA, PORTB

call delay

movff PORTA, PORTB

bra ending

thisiszero:

movff PORTA, PORTB

call delay

movff PORTA, PORTB

call delay

movff PORTA, PORTB

bra ending

delay:

movlw 0xff

movwf counter

loop:

Nop

Nop

Nop

decf counter

bnz loop

return

ending:

bra $