Total No. of Printed Pages:2

SUBJECT CODE NO:- P-380
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E.(EEP/EE/ EEE) Examination MAY/JUNE-2016
Microcontrollers & Applications
(Revised)

[Time: Three Hours] **[Max Marks:80]**

"Please check whether you have got the right question paper."

N.B i) Solve any three questions from each section.
ii) Use suitable data wherever necessary.

Section A

Q.1 a) Write an appropriate instruction for following operation in case of 8051 microcontroller. 07
1) Copy content of accumulator to R_2 of bank 0.
2) Move the contents of memory location to accumulator, where memory location is pointed out by register R_1.
3) Exchange upper and lower nibble of accumulator.
4) Change flag to '0' if it was '1' and vice versa.
5) Interchange contents of accumulator and R_1.
6) Go back to main program from subroutine.
7) Convert addition in accumulator to a decimal value.

b) Differentiate between microprocessor and microcontroller. 06

Q.2 a) Draw and explain programming model of 8051. 07

b) With appropriate bit formal, explain program status word of 8051 microcontroller. 06

Q.3 a) Write an assembly language program to subtract the values of location 51H from 50H and store the result in location 52H. Store 00H, if result is positive; else store 01H in 53H. 07

b) States explain various addressing models of 8051 microcontroller with suitable example. 06

Q.4 a) Describe the role of following registers in 8086 microprocessor 07
CS, DS, ES, SS.

b) Give output after execution of following instruction 06
1) ADD AX, 5896H
2) INX CX
3) MUL CX
4) IN AL,DX

Q.5 Write short note on- (any two) 14
1) Interrupts in 8051
2) Stack and stack pointer
3) Logical instruction in 8051

Section B

Q.6 a) Interface the stepper motor using port 2 and a switch using P1.6. Write 8051 based ALP to rotate the stepper motor in clockwise direction, if switch is 'ON', else in anti-clockwise direction. 07

b) Write a program to toggle the bits of port 1 with a delay of 10ms. 06

Q.7 a) Interface DC motor to 8051 microcontroller. Write a program in assembly language to rotate it for desired speed. 07

b) Explain interrupt services provided by 8051 microcontroller. 06

Q.8 a) Interface ADC 0808/0809 to 8051 microcontroller. Write a program in assembly language to convert analog i/p connected to /N1 to corresponding digital. 07

b) Interface DAC 08 to microcontroller 8051. Write a program in assembly language to generate 60% duty cycle square wave. 06

Q.9 a) Draw and explain functional block diagram of timer/counter section of 8051. 06

b) Assume an oscillator running at 12MHz controls an 8051 microcontroller. Write an ALP to generate 4KHz square wave on port 1.2 using timer 0 in auto reload mode. 07

Q.10 Write short notes on – (Any two) 14

1) Serial communication using 8051.
2) Interfacing of seven segment LED's.
3) Keyboard interfacing.