SUBJECT CODE NO:- P-300
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E.(EEP/EE/ EEE) Examination May/June 2017
Microcontrollers & Applications
(Revised)

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

Please check whether you have got the right question paper.

N.B
          i)Solve three questions from each section.
          ii)Q.1 & Q.6 are compulsory.
          iii)Assume suitable data if necessary.

Section A

Q.1   Solve---   14

1.In what way is the LCALL instruction differs from ACALL instruction.

2.What is stack? How much space can be used for stack in 8051 microcontroller?

3.What is the function of Data pointer in 8051 microcontroller.

4.What are the differences in execution of following instructions-
a)MOVA, #28H   b)MOV A,28H.

5.Explain how bit addressing is distinguished from byte addressing in 8051 microcontroller.

6.Enlist the features of 8051 microcontroller.

7.Name the register of 8051, which do not have address. Why?

Q.2   a)Draw and explain programming model of 8086 microprocessor.   07
         b)Explain following instructions of 8086-   06
         i)MOV [BX],12   ii)LAHF   iii)XCHG AL,BL   iv)ADDAC,80

Q.3   a)Write an assembly language program to add two 8-bit numbers which are stored at internal RAM   07
         location 20H and 21H. Store the 16bit result at 30H and 31H.
         b)Explain the execution of following instruction (Assume suitable data if required)   06
         i)MθV @R1,#20H   ii)POP DPH   iii)XCH A,RO   iv)ADDC A,R1
         v)MOVX @DPTR,A   vi)DAA

Q.4   a)Draw and explain block diagram of 8051 microcontroller.   07
         b)Write an instruction to load 55 in by.   06
         -Immediate addressing mode
         -Register addressing mode
         -Direct addressing mode
         -Register indirect addressing mode

Q.5   Write short note on – (any three)
         i)Branch instructions of 8051   05
         ii)Memory organization of 8086   04
         iii)Flags in 8086   04
         iv)Comparison of microprocessor & microcontroller   04
         v)Overview of 8051 family.   04

2017

Section B

Q.6   Solve-   14
       a)What is the rate played by timer 1 in serial communication.
       b)What is the function of the chip. MAX 232 in serial communication.
       c)Calculate the step size of ADC 080810809, when operated at 5V.
       d)What is the difference between the operation of timer and counter.
       e)Does 8051 microcontroller support serial and parallel data transfer? How.
       f)Differentiate between vectored and non vectored interrupt.
       g)What is the role of ALE pin in ADC 0808/0809.

Q.7   a)Take the data in through port 0 and port 1 of 8051, one after the other and transfer this data   07
       serially continuously. Use either assembly or C language for program.
       b)Interface DC motor to 8051 microcontroller. Write a program to rotate it in clockwise direction.   06

Q.8   a)Write a program to create a pulse of 5ms on P2.3 using timer 0 of 8051.   07
       b)Draw and explain bit format of TMDD & TCON registers of 8051 microcontroller.   06

Q.9   a)Interface ADC 0808/0809 to 8051 microcontroller. Write a program to convert analog i/p into its.   07
       Corresponding digital output.
       b)Interface a key to P1.7 and a LED to P2.7. Write a program to read the status of Key & to display it on 06
       LED.

Q.10   Write short note on - (any two)
       i)Interfacing of relay   06
       ii)8051 interrupts   06
       iii)Interfacing of stepper motor   07
       iv)DAC interfacing.   06

2017