Total No. of Printed Pages:03

SUBJECT CODE NO: H-197
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E. (EEP/EE/EEE)
Microcontrollers & Applications
(REVISED)

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

Please check whether you have got the right question paper.

N.B

1) Solve <u>three</u> Questions <u>from each section</u>.
2) Q.1 & Q.6 are compulsory.
3) Assume suitable data if necessary.

SECTION A

Q.1   Solve:-   14

1) What is the pipelining of 8086.

2) Explain the function of Queue for 8086 microprocessor.

3) Design immediate Addressing mode with example for 8086.

4) What is opcode & operand of an instruction.

5) What is the function of data pointer in 8051 microcontroller.

6) With example explain the function of rotate instruction.

7) How the bit addressing is distinguished from byte addressing.

Q.2   a) Draw and explain programming model of 8086 microprocessor.   07

b) Explain in detail generation of 20 – bit physical address of 8086 microprocessor.   06

Q.3   a) Explain the different data transfer instruction of 8086.   07

b) Write ALP to add ten bytes in internal RAM locations. Assume that number are stored starting from location 20 H. store the result (8 – bit) at 30 H.   06

Q.4   a) Explain in detail TCON special function Register of 8051.   07

b) Explain the PSW of 8051 microcontroller.   06

Q.5   Write a short note on (<u>any three</u>)

    i)   Features of 8086   05

    ii)   Overview of 8051 microcontroller family.   04

    iii)   Subroutine   05

    iv)   Comparison of microprocessor & microcontroller.   04

SECTION B

Q.6   Solve:-   14

    1) Explain the function of ALE PIN in 8051 microcontroller.

    2) Explain the function of port 0 of 8051 microcontroller.

    3) Explain the Boolean processor of 8051 microcontroller.

    4) Explain the function of port 1 of microcontroller 8051.

    5) Explain the working of timer in 8051 microcontroller.

    6) Explain the function of $\overline{INT0}$ & $\overline{INT1}$ of microcontroller 8051.

    7) What is the priority of interrupt.

Q.7   a) Write a program to generate a frequency of 1.9 KHZ on P1.2 bit. Use timer 0.   07

    b) Explain in detail serial data transmission mode 0 of 8051 microcontroller.   06

Q.8   a) Draw the interfacing of steppers motor with microcontroller 8051. Write a program to rotate the stepper motor continuously by step angle of 1.8°.   07

    b) It is required to interface 8 LEDS to 8051 microcontroller. Draw the interfacing diagram and write a program to blink the LEDS on and off continuously. Use common cathode configuration.   06

Q.9   a) It is required to interface 7 – segment display to 8051 microcontroller. Draw the interfacing   07
diagram and write a program to display the BCD digits 0 to 9.

        b) Explain in detail interrupt structure of 8051.   06

Q.10   Write a short note on (any three)

       1) Serial interface of 8051 microcontroller.   05

       2) SFRs of 8051 microcontroller.   04

       3) Port 0 of 8051 microcontroller.   05

       4) Features of 8051 microcontroller.   04