Exam.Code:0927
Sub. Code: 33643

2125

B.E. (Electronics & Comm. Engineering)

Third Semester

EC-304: Microprocessor and Microcontrollers

Time allowed: 3 Hours Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit. Draw the diagrams wherever required.

x-x-x

I. Attempt the following:-

a) Discuss subroutine and its importance.

b) Calculate the physical address, when segment address is 1085H and effective address is 4537H.

c) What is assembly level programming?

d) What type of data bus does the 8085 use?

e) Give an example of PUSH and POP instruction.

f) What is the maximum program memory capacity of the 8051?

g) Explain hardware interrupts of the 8085 support?

h) Explain with an example of differentiate among mask able and non masakable interrupts.

i) What is I/O read, I/O write?

j) What is the role of the stack pointer in the 8051? (10x1)

UNIT - I

II. a) What is meant by memory mapping, explain with the help of an example?

b) What are the advantages of segmented memory? (6+4)

III. a) How the 8085 processor differentiates a memory access (read/write) and 1/0 access (read/write)?

b) What will be the output of the program at PORT 1 given below? Give the stepwise explanation of given program. Also calculate the execution time if the microprocessor is operating at 2MHz.

```
MVI B, 91H
MVI C, A8H
MOV A, B
ORA C
OUT PORT 1
HLT.
```

(5+5)

P.T.O.

IV. a) Write a program to count continuously in hexadecimal from FFH to 00H in a system with a 0.5 micro sec. Clock period. Use register C to set up a one millisecond delay between each count and display the numbers at one of the output ports.

b) Explain the addressing modes of 8085 microprocessor with suitable examples. (5+5)

UNIT - II

V. a) Discuss memory organization and the key features of the 8051 microcontroller.

b) What are Special Function Registers (SFRs) in the context of the 8051 microcontroller? Provide examples of their use. (5+5)

VI. a) Explain with an example about the role of interrupts in the 8051 microcontroller and describe how they can be prioritized?

b) Explain how bit-addressable memory works in the context of single-bit instruction programming in the 8051 microcontroller. (5+5)

VII. Examine the use of the 8051 microcontroller in communication systems. What roles does it play in devices such as modems or routers? (10)

x-x-x