Hall Ticket Number:

Code No. : 31304

VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD

B.E. (E.C.E.) III Year I-Semester (Main) Examinations, Nov./Dec.-2016

Microprocessors and Microcontrollers

Time: 3 hours Max. Marks: 70

*Note: Answer **ALL** questions in **Part-A** and any **FIVE** from **Part-B***

Part-A (10 × 2 = 20 Marks)

1. Differentiate between Maximum and Minimum modes of 8086.
2. Mention the advantages of segmented memory in 8086.
3. Define assembler directive. Explain any two with suitable example.
4. Describe the instructions with examples
   a) XLAT b) DAA
5. Detail the Control Word Register of 8255 in I/O mode.
6. Neatly sketch the block diagram of 8253 timer.
7. Detail the TMOD register configuration of 8051.
8. Describe the functions of pins of 8051:
   a) RST b) PSEN'
9. List the techniques of doubling the baud rate in serial communication using 8051 microcontroller.
10. Define an Interrupt. List the interrupts supported by 8051 microcontroller with their addresses.

Part-B (5 × 10 = 50 Marks)

11. a) Draw and explain the architecture of 8086. [8]
    b) Write the classification of instruction set of 8086 with examples. [2]
12. a) Write an ALP to find average of 10 numbers in an array using 8086 microprocessor. [5]
    b) Explain about debugging tools. [5]
13. a) Interface the following Memory ICs with 8086 [5]
    i) Two 4 KB EPROMs, ending at FFFFFH.
    ii) Two 4 KB SRAMs, starting at 00000H.
    b) Interface a DAC to 8086 and write a program to generate a triangular waveform. [5]
14. a) Explain in detail the RAM and ROM memory organisations of 8051. [5]
    b) Explain the various addressing modes of 8051. [5]
15. a) Explain the operational modes of LCD. [4]
    b) Interface LCD to 8051 and write a program to display a character. [6]
16. a) Draw and explain the Memory read timing diagram of 8086 in minimum mode configuration. [5]
    b) Explain the string handling instructions of 8086. [5]
17. Write short notes on any ***two*** of the following:
    a) USART interfacing with 8086. [5]
    b) Write a program to transmit the character "S" serially at a baud rate of 9600 using 8051 microcontroller (Assume crystal frequency =11.0592 MHz). [5]
    c) Stepper Motor Interfacing. [5]

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