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Code No. : 15601 S

**VASAVI COLLEGE OF ENGINEERING (Autonomous), HYDERABAD**  
**B.E. (IT: CBCS) V-Semester Supplementary Examinations, May-2019**

**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. Why is 8085 processor called as an 8 bit processor-justify:
2. How can you generate MR, MW, and IOR and IOW control signals in 8085 microprocessor?
3. List the main functions of the BIU (Bus Interface Unit) of 8086 processor.
4. Write a program to find the factorial of 4 using 8086 microprocessor.
5. Write the difference between A/D and D/A converters?
6. Write the advantage and disadvantage of parallel communication over serial communication.
7. Write a delay program using 8051 instructions.
8. How many register banks are there in 8051 internal RAM? How to select the desired bank?
9. List the on-chip peripherals of 8051 microcontroller.
10. List out the 8051 default interrupt priorities.

**Part-B (5 × 10 = 50 Marks)**

*(All sub-questions carry equal marks)*

- 11.a) Explain the LDAX, XCHG, and DAD instructions of the 8085 with examples.  
b) Differentiate between I/O mapped I/O and memory mapped I/O in 8085.
- 12.a) Explain the concept of segmented memory. What are the advantages?  
b) List out different assembler directives used in 8086 microprocessor with examples
- 13.a) Discuss about I/O mode of operation of 8255 programmable peripheral chip.  
b) Explain about the architecture of 8251 USART with a neat sketch.
- 14.a) List and explain the logical group of instructions of 8051 microcontroller with examples.  
b) Draw the Internal RAM memory organization in 8051.
- 15.a) Discuss different modes of operation of the timers in 8051.  
b) Explain how interface an 8-bit ADC with 8051 Micro-controller.
- 16.a) Draw the timing diagram of MVI B data. Indicate machine cycle, states, and modes of addressing.  
b) Write an assembly language program to add two 16 bit numbers using 8086 processor.
17. Answer any *two* of the following:
  - a) Interface two 8K\*8 RAM chips and two 8K\*8 EPROM chips with 8086 so as to form a completely working system configuration.
  - b) Explain various types of jump instructions in 8051
  - c) Write an assemble language program for LED blinking in 8051 microcontroller.