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**Second Semester M.Tech. Degree Examination, June/July 2015**  
**Microprocessor and Microcontrollers**

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions.**

- 1 a. What are microprocessor, draw and explain the block diagram of simple microprocessor based system? (08 Marks)
- b. Differentiate between microprocessor and microcontroller. (06 Marks)
- c. What are general purpose register and write a note on memory address register and the instruction register. (06 Marks)
- 2 a. Explain the features of 8086 processor. (10 Marks)
- b. Explain the architecture of 8086 processor with the help of neat block diagram. (10 Marks)
- 3 a. Explain the PUSH and POP instruction in 8086 processor. (10 Marks)
- b. Briefly explain about shift instructions of 8086 processor. (10 Marks)
- 4 a. Explain the following 8086 instructions : (10 Marks)
  - i) CLI
  - ii) HLT
  - iii) WAIT
  - iv) ESC
  - v) LOCK.
- b. Explain the following assembler directives with example : (10 Marks)
  - i) PUBLIC
  - ii) SEGMENT and ENDS.
- 5 a. What are the sources of interrupts in 8086? (10 Marks)
- b. What are software interrupt? How 8086 responds to software interrupts. (10 Marks)
- 6 a. Explain the following related to 8086 processor : (12 Marks)
  - i) Register addressing
  - ii) Immedite addressing
  - iii) Direct addressing
  - iv) Register indirect addressing.
- b. Draw the block diagram of 8086 pin out configuration and explain it. (08 Marks)
- 7 a. What are microcontroller and write a block diagram of a microcontroller. (06 Marks)
- b. Briefly explain about four bit microcontroller and eight bit microcontrollers. (08 Marks)
- c. Write a brief note on PIC microcontrollers. (06 Marks)
- 8 a. Explain with neat block diagram 8051 microcontroller hardware. (10 Marks)
- b. Write a shorts notes on the following : (10 Marks)
  - i) External memory
  - ii) Serial data input/output.