MEC-901 **Roll No.** | | | | | | | | | | |

B.Tech.
(SEM I) ODD SEMESTER EXAMINATION2015-16
Microprocessor and Microcontroller

[Time: 3 hrs.] **[Max. Marks: 100]**

Note- ***Attempt All Questions. All Questions carry equal marks*:-**

1. Attempt **any four** parts of the following. [4x5=20]
   a) Draw the internal architecture of the 8085 and explain.
   b) Explain various addressing modes of 8085 microprocessor.
   c) Explain the significance of the following pins of 8086 processor:
      i) ALE ii) MN/MX iii) LOCK iv) TEST
   d) With reference to 8086 CPU, explain the role of the following:
      i) Instruction queue ii) Segment registers iii) General purpose registers.
   e) Explain in brief the functions of 'execution unit', with aneat block diagram.
   f) Discuss the interrupts types of 8086 microprocessor.

2. Attempt **any four** parts of the following. [4x5=20]
   a) Explain the data transfer group of 8086 instructions.
   b) Explain with at least two examples, the register indirect addressing and register relative addressing. Identify theaddressing modes for the following instructions:
      i) ADD [23A5H], AL ii) INC [BX] iii) LEA SI, offset num
   c) What do you mean by 'assembler directives'? Explain the following assembler directives:
      i) ASSUME ii) PROC....ENDP iii) DB,DW,DD
   d) Explain XLAT and XCHG instruction.
   e) What is the difference between the jump and loop instructions? How does CPU identify between 8-bit and 16-bitoperations?
   f) Write a program for the addition of a series of 8-bit numbers. The series contains 100 (numbers).

3. Attempt **any two** parts of the following. [2x10=10]
   a) Draw and explain the block diagram of 8254 Programmable Interval Timer.
   b) With neat block diagram explain the 8255 Programmable Peripheral Interface.
   c) What is a co-processor? Why it is called so? Give the significance of 8087 NDP. (Numerical data processor).

4. Attempt **any two** parts of the following. [2x10=10]
   a) Show an interface of 8086 microprocessor to 8087 and explain its basic principle of operation.
   b) Explain the architecture of 8051 microcontroller with neat diagram.
   c) Describe the different modes of operation of timers/counters in 8051 with its associated register.

5. Attempt **any two** parts of the following. [2x10=10]
   a) Draw the diagram to interface a key board with 8051 microcontroller and explain.
   b) Explain about special 80386 registers.
   c) Enlist the salient features of 80486. Draw and discuss the flag register of 80486.