Roll No. ....................

## 24437

## B. Tech. 7th Sem. (EEE)

## Examination – May, 2015

### MICROCONTROLLER & EMBEDDED SYSTEM

#### Paper : EEE-413-F

Time : Three Hours ]                    [ Maximum Marks : 100

*Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.*

Note :   Attempt *five* questions in all, selecting *one* question from each Section. Question No. **1** is *compulsory.*

1. (a) Differentiate between CISC and RISC.     5

   (b) Differentiate between PIC machine cycle and intel 8051 machine cycle.     5

   (c) Explain the function of $\overline{PSEN}$ and $\overline{EA}$ pin of 8051 microcontroller.     5

   (d) Explain embedded microcontroller devices with example.     5

### SECTION – A

2. (a) Define with the help of block diagram how MOV ACC Reg. instruction is executed in Harvard and Princeton architecture.     10

   (b) What is difference between microprocessor and microcontroller.

### OR

3. (a) What is an interrupt ? How microcontroller responds to an interrupt ? Explain in detail.     10

   (b) What is difference between embedded micro controller and external memory controller.     10

### SECTION – B

4. (a) Explain how an output port can be expanded PIC with suitable schematic and program.     10

   (b) Enlist various CPU Register in PIC. How is stack organised in PIC.     10

### OR

5. (a) Discuss the interrupt structure in PIC microcontroller.     10

(b) Write a template for PIC microcontroller. Explain "ASM" file.

### SECTION – C

6. (a) Explain the interfacing of ADC with 8051 microcontroller. 10

(b) Write an ALP for 8051 to generate a square wave of 2 kHz at P1.5. Use times 0 (F × TAL = 11.0592 MHz). 10

### OR

7. (a) Explain the Pin diagram of 8051 microcontroller. 10

(b) Explain interfacing of LCD with 8051 microcontroller. 10

### SECTION – D

8. (a) Write a short note on I/O devices in an embedded system. 10

(b) Write a short note on "structural units in processor". 10

### OR

9. Compare features in an exemplary family chip (or core) of each of the following.

Microprocessor, microcontroller, RISC Processor, DSP. 20