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**MCA DEGREE V SEMESTER EXAMINATION NOVEMBER 2015****ELE 2302 INTRODUCTION TO EMBEDDED SYSTEMS**  
(Regular)

Time: 3 Hours

Maximum Marks: 50

(5 × 10 = 50)

- I. (a) Explain the components of typical embedded systems in detail.  
(b) Briefly explain important aspects of RISC architecture.  
**OR**
- II. (a) What are the functions of a real time kernel? Explain each.  
(b) Briefly explain the organization of PIC 16F87X series processors.
- III. What is meant by addressing mode? Explain 8086 addressing modes for control transfer instructions.  
**OR**
- IV. (a) What is the difference between minimum mode and maximum mode operation of 8086?  
(b) Discuss briefly about pre-fetch queue in 8086.
- V. (a) Define and explain Universal asynchronous receiver transmitter (UART).  
(b) Explain any one application of Pulse Width Modulation.  
**OR**
- VI. Explain the features and operation of SPI bus.
- VII. (a) Sketch the circuit diagram of an instrumentation amplifier and explain.  
(b) Describe the operation of a flash type A/D converter. What are its main advantages and disadvantages?  
**OR**
- VIII. (a) Draw a circuit showing amplification and cold junction compensation for thermocouple and explain.  
(b) Explain any one type of force transducer.
- IX. (a) Explain file register allocation in PIC microcontrollers.  
(b) Explain various arithmetic instructions of PIC microcontroller.  
**OR**
- X. (a) Explain various conditional branching instructions in PIC family of microcontrollers.  
(b) Explain the role of TRIS register in PIC microcontrollers.