

Subject Code: C9513

M.Tech - I Semester [R09] Regular/Supplementary Examinations, April - 2012  
**MICRO-CONTROLLER & APPLICATIONS**  
(Control Systems)

Time: 3 Hours

Max Marks: 60

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Answer any FIVE questions. All questions carry EQUAL marks.

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1. a. Discuss the advantages of microcontrollers over microprocessors in control applications.  
b. What are Special Function Registers and explain the use of each one. (4M+8M)
2. a. Draw the block diagram of MCS-51 architecture and explain.  
b. Classify the instruction set into different groups and explain two instructions in each group. (6M+6M)
3. a. Write a program for continuous transfer of the message 'Hello' serially at 9600 baud, 8-bit data, 1 stop bit.  
b. Write the pin description of 89c51 microcontroller. (6M+6M)
4. a. Write a program to generate a square wave of 2 kHz frequency on pin P1.0, assume Oscillator frequency of 12 MHz.  
b. Write a program for pulse generation on pin 1.0 of 89c2051 by INT0 interrupt, assume Oscillator frequency of 12 MHz. (6M+6M)
5. Discuss the interrupt structure in PIC microcontrollers. List the various interrupt sources in PIC 1671. Write an initialization program to enable all interrupts in PIC 1674. (12M)
6. What are the various functional blocks in PIC 16F877? Discuss the Functional architecture of PIC 16F877. (12M)
7. a. Explain DAC and ADC interfacing with 89C51 microcontrollers using relevant diagram.  
b. Discuss the selection criteria of an ADC for interfacing. (10M+2M)
8. Draw the diagram of digital PID controller and explain the operation using flow chart. (12M)