

Code: R7410405

B.Tech IV Year I Semester (R07) Supplementary Examinations December 2015

MICROCONTROLLERS & APPLICATIONS

(Electronics & Communication Engineering)

(For 2008 regular admitted batch only)

Time: 3 hours

Max. Marks: 80

Answer any FIVE questions
All questions carry equal marks

- 1 (a) Determine whether the 8051 can be made to execute a single program instruction using external circuitry only without the help of software.
(b) Can we use 12 MHz Xtal for 8051 microcontroller to implement serial communication. What are the drawbacks and how to overcome them?
- 2 (a) What is an instruction and explain briefly about the instruction format of 8051 microcontroller?
(b) Write a program to shift a string of data of length n to another location such that there is an overlap of certain locations of source and destination.
- 3 (a) Explain interrupt latency, interrupt response time and interrupt recovery time in real time operating system.
(b) Discuss the interrupt structure of 8051. Mention the priority. Explain how least priority is made as highest priority.
- 4 (a) What are the limitations in pulse counting in micro controller? How to count the pulses appearing at a very high rate using microcontrollers?
(b) How do you set the registers TH & TL when changing the frequency of operation?
- 5 (a) Assume that a 2-digit BCD data is available in Reg A, as a packed BCD number. Write an assembler code to drive 7 segment display driver subroutine to display the two digits one after another on single 7 segment display.
(b) Draw an interface for 3 scan lines and 5 return lines in a keypad.
- 6 (a) What are the rules to be followed by the interrupt routines in RTOS?
(b) Explain round robin pre-emptive multi-tasking algorithm.
- 7 (a) Assume crystal frequency = 12 MHz implement a time delay loop for the generation of 50 ms delay using the instructions of 80196. Do not use timer of microcontroller.
(b) Explain about the interrupts of 80196 microcontrollers.
- 8 (a) Give the overview of the memory organization in ARM processors.
(b) Explain how a constant is loaded into a general purpose register of ARM processor.
(c) What is a thumb state? Explain.
