

Reg. No.

FIFTH SEMESTER B.TECH (INSTRUMENTATION AND CONTROL ENGINEERING)

END SEMESTER EXAMINATIONS, NOV/DEC 2015

SUBJECT: MICROPROCESSORS AND MICROCONTROLLERS [ICE 305]

Time: 3 Hours

MAX. MARKS: 50

Instructions to Candidates:

- ❖ Answer **ANY FIVE FULL** questions.
- ❖ Missing data may be assumed suitably.

- 1A.** Differentiate between the following **4**
i) RISC and CISC ii) Microprocessor and Microcontroller
- 1B.** Explain the oscillator circuit of 8051 with its timing. **3**
- 1C.** With neat diagram explain the RAM organization of 8051. **3**
- 2A.** What is addressing mode? With an example explain 8051 addressing modes for accessing external memory. **5**
- 2B.** Write an 8051 ALP to find the cube of a number. **3**
- 2C.** Explain the following instructions, **2**
i) DAA ii) SWAP A iii) RRC iv) MOV A, @R1
- 3A.** Explain the characteristics of mode-1 of 8051 timer with relevant block diagram. Also generate a waveform with 66% duty cycle. **5**
- 3B.** Write a program to transmit "ICE" serially with a baud rate of 4800. **3**
- 3C.** Bring out the difference between polling and interrupt with suitable example. **2**
- 4A.** Briefly explain the architectural features of ARM. **3**
- 4B.** Draw and explain the programmer's model of ARM. **5**
- 4C.** With stack area explain any one type of stack operation in ARM. **2**
- 5A.** Show the interfacing diagram of keyboard and DC motor with LPC2148 and write a program to control the speed of DC motor by pressing any three switches. **6**
- 5B.** Explain the GPIO registers associated with LPC2148 and write a program to turn ON the LED based on the status of toggle switch. **4**
- 6A.** Describe memory storage system in ARM. **2**
- 6B.** Write a short note on the following with respect to PIC18 family **8**
i) STATUS register ii) File register iii) Program ROM iv) GPIO programming.