Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY
Manipal University

FOURTH SEMESTER B.Tech. (E & C) DEGREE END SEMESTER EXAMINATION
MAY/JUNE 2016
SUBJECT: MICROCONTROLLERS AND APPLICATIONS (ECE - 3284)

TIME: 3 HOURS **MAX. MARKS: 50**

Instructions to candidates
- Answer **ALL** questions.
- Missing data may be suitably assumed.

1A.	Explain different addressing modes of 8051 microcontroller with an example each.
1B.	A temperature sensor is connected to P1.2. Write a program to read the temperature and store the values in the registers indicated as follows depending on the temperature. If T= 75 then A=75 If T< 75 then R1=T If T>75 then R2=T
1C.	Explain the PSW of 8051 microcontroller.
	(5+3+2)
2A.	Draw the interfacing diagram of temperature sensor with 8051 microcontroller and explain its working.
2B.	Assume operating frequency of timer 1 is 10 MHz and it is operating in mode 1. Program the timer 2 such that a new task is scheduled after 0.05 sec.
2C.	Differentiate between Von Neumann architecture and Harvard architecture.
	(5+3+2)
3A.	Operating voltage range of a washing machine is 180 – 240 V. Assume that the supply voltage of the washing machine is read at port 0 of the 8051 microcontroller. A relay is connected to P1.0. The washing machine is connected to the microcontroller through the relay. Write a program to monitor the supply voltage and turnoff the washing machine if the voltage exceeds 240 V or goes below 180 V.
3B.	Write an assembly level program to add the BCD numbers stored internal RAM locations 25h, 26h and 27h together and put the result in RAM locations 31h and 30h.
3C.	Write the programmers model of 8051 microcontroller.
	(5+3+2)
4A.	Design a 8031-based system with 8K bytes of program ROM and 8K bytes of data ROM. Write the significance of PSEN pin.
4B.	Explain TMOD register of 8051 microcontroller.

4C.	Assume that pin P2.3 represents the condition of an oven. If P2.3 goes high, it means that the oven is hot. Write a program to monitor P2.3 continuously and whenever it goes high, send a high-to-low pulse to P1.5 to turn on a buzzer.
	(5+3+2)
5A.	With a neat diagram explain the working of android mobile phone controlled Bluetooth Robot using 8051 microcontroller
5B.	Write a program to rotate DC motor in clockwise and anticlockwise direction continuously.
5C.	The 8051 counts the number of people walking through a secured door. The movement of people using the door is sensed using electronic sensor which give a pulse output for each person who walks across the sensor. Write a program to count the pulses and display the total count using LED's connected to port 0 and port1.
	(5+3+2)