Roll No. | | | | | | | | | | | | |  Total No. of Pages : 02

Total No. of Questions : 18

**B.Tech.(Automation & Robotics) (2012 & Onward)/**
**(EE/Electrical & Electronics Engg.) (2012 Onwards)/**
**(Electronics & Electrical Engg.)/(Electrical Engineering & Industrial Control) (2012 to 2017)**
**(Sem.–6)**

# MICROCONTROLLER AND PLC

**Subject Code : BTEE-604**
**M.Code : 71150**

**Time : 3 Hrs.** **Max. Marks : 60**

**INSTRUCTIONS TO CANDIDATES :**

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.**
3. **SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.**

## SECTION-A

**Answer briefly :**

1. For a time delay of 25ms, what value do you need to load into the timer registers? (Assume XTAL = 11.0592 MHz)
2. Compare memory mapped I/O and peripheral mapped I/O.
3. Show the connections of LCD interfacing with 8051.
4. What is the use of PLD and FPGA?
5. What are vectored and non-vectored interrupts?
6. Write a program to subtract the contents of R1 of Bank0 from the contents of R0 of Bank1.
7. What is the difference between the Microprocessors and Microcontrollers?
8. Explain the functions of the pin PSEN of 8051.
9. What is the difference between the instructions “LCALL” and “ACALL”?
10. Discuss the function of PLC retention timer.

## SECTION-B

11. Differentiate between programmable logic controller and computer.

12. Distinguish between interrupt and polling. Discuss various types of interrupts in 8051.

13. Explain the functional pin diagram of 8051 Microcontroller.

14. List and explain the addressing modes of 8051 with taking two examples for each addressing modes.

15. WAP to add 10 bytes of data stored at RAM memory 41H to 50H and save the result at 61H and 62H memory locations.

## SECTION-C

16. a) Describe SCON and TCON registers of 8051 microcontroller. (5)

    b) Write a program to generate 2KHz square wave on pin P1.0 of port 1 of 8051 by using timer 1 in mode 1. Assume XTAL = 11.0592 MHz. (5)

17. With a neat circuit diagram explain how a keyboard is interfaced with 8051 microcontroller and write 8051 ALP for keypad scanning. (10)

18. a) Write a program that continuously gets a single bit of data from P2.4 and sends it to P2.2, while simultaneously (a) creating square wave of 10 ms period on P2.7, and (b) sending message "GET READY" stored at ROM locations starting at 0200H. Use timer 0 to create the square wave. Assume XTAL = 22 MHz and 4800 baud rate. (8)

    b) Write a program to divide two 8 bit numbers and save the result in 50H and 51H memory location. (2)



**NOTE : Disclosure of identity by writing mobile number or making passing request on any page of Answer sheet will lead to UMC case against the Student.**