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

Total No. of Questions : 18

B.Tech. (EE) PT   (Sem.–7)

MICROCONTROLLER AND PLC

Subject Code : BTEE-604
M.Code : 74092

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

Write briefly :

1) What is the difference between Microprocessor and Micro-controllers?

2) What is the use of interrupts in microcontroller? How many interrupts are there in microcontroller 8051?

3) How many address bus, data bus and control bus are there in microcontroller 8051?

4) What is the use of Program Counter and Data Pointer in microcontroller 8051?

5) Define direct addressing in microcontroller 8051.

6) Define Flags and Program Status word (PSW) of microcontroller 8051.

7) How an I/O pin can be act as both an input and output pin.

8) How many modes of serial data transmission are available in 8051?

9) Explain the function JC and JNC with one example.

10) What are the different modes of execution of PLC program?

SECTION-B

11) With the help of neat and clean block diagram, explain the architecture of 8051 in detail.

12) Explain the structure, concept and timing diagram of an on-delay and off delay PLC timer.

13) Write a program to generate a square wave of period 1 sec on Port P2.1. Use interrupt programming of timer TO in Mod 1.

14) Construct a lookup table program that converts the hex number in A to an equivalent BCD number in registers R5(MSB) and R4(LSB).

15) Explain memory mapped I/O and memory address decoding of 8051.

SECTION-C

16) Explain the architecture of CPLD and also discuss its different types and major design issues.

17) Write the program that will accomplish following task :

   a) Exchange the contents of the B register and external RAM address 03CFh.

   b) Divide the number in RAM location 2Eh by the number 12h; put the quotient in R4 and the remainder in R5.

18) Explain the following application of 8051 in detail :

   a) Interfacing of LCD display.

   b) Digital to analog conversion.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.