

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.**