TE (E) (Choice Based), Instru. Engg,   15/05/19

3 Hours   **[Total Marks: 80]**

N.B. (1) Question no 1 is **compulsory**.
   (2) Attempt any **three** questions out of remaining **five** questions.
   (3) Assume suitable data if necessary.
   (4) Figure to the right indicates full marks.

Q. 1 Answer the following questions. (Attempt any **FIVE**)   20
   a) Explain bit addressable memory of 8051.
   b) Give the function of following Instruction-
        i) CJNE A, #45H,12H,   ii) MOVC A, @A+DPTR.
   c) Differentiate between timer and counter operation of 8051.
   d) Explain the Difference between Microprocessor and Microcontroller.
   e) Interface LED to 8051 microcontroller. Write a program to toggle LED.
   f) Explain Power Saving and Power Down mode.

Q. 2 a) Draw and explain the Architecture of 8051 microcontroller   10
    b) What is Embedded system? Explain the design metrics of Embedded system.   10

Q. 3 a) Write an assembly language program to convert two ASCII numbers into
       packed BCD Number.   10
    b) Explain the addressing mode of 8051 microcontroller with example.   10

Q. 4 a) Write a program to transmit message "INSTRUMENTATION" serially at
       9600 baud rate.   10
    b) Draw and Explain the interface of LCD. Write a program to display
       "Good Morning" on this display.   10

Q.5 a) Interface 7 Segment Display with 8051 and write a program to display 0-9 counter with
       predetermined delay.   10
    b) Interface DAC with 8051 microcontroller and write a program to generate square wave
       continuously.   10

Q.6 a) Explain the automatic washing machine system by using 8051 microcontroller.   10
    b) Explain the interrupt structure of 8051 microcontroller in details.   10

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