No. of Printed Pages : 3 **BIEE-010**

B.Tech. - VIEP - ELECTRICAL ENGINEERING

(BTELVI)

Term-End Examination, 2019

BIEE-010 : MICROCONTROLLERS

Time : Three Hours] **[Maximum Marks : 70**

Note : Answer **any seven** questions. All questions carry equal marks. Scientific calculator is permitted. Assume data wherever required.

1. (a) Compare RISC and CISC CPU architecture. [5]

   (b) Enlist the salient features of the parallel ports of 8051 microcontroller. [5]

2. (a) What is the function of DPTR register ? Differentiate RRA and RRCA instruction in 8051 microcontroller. [5]

   (b) Explain XTAL1 and XTAL2. Differentiate RET and RET1 instruction in 8051. [5]

3. Describe the operation of various interrupts supported by 8051 microcontroller with priority level and vector address. [10]

4. (a) Write down the various steps to generate a time delay in 8051C programming. [5]

(b) Assume that XTAL=11.0592 MHz. What value do we need to load the timer's register if we want to have a time delay of 5ms ? Write a program for timer O to create a pulse width of 5ms on P2.3.[5]

5. (a) Describe various modes of timer in 8051C. [5]

(b) How can data be transferred in between a PC and microcontroller using serial communication? Draw the necessary diagram and explain. [5]

6. Write a program to convert a BCD number to Gray code number. [10]

7. (a) Write a program to find the smallest number in a block of data stored in the memory locations 70H-7FH and store the result in R1. [5]

(b) Differentiate the operation of timer and counter in 8051 microcontroller with appropriate example. [5]

8. Draw and explain the RS-232 serial port connection to

8051 microcontroller. Why is IC MAX212 required as an interface ? [10]

9. Draw the interfacing diagram of LCD with 8051 microcontroller. Explain how to display the data using LCD. [10]

10. Write a short note on **any two** of the following :[2×5=10]

(a) PUSH and POP opcodes

(b) Indexed Addressing mode

(c) 8051 micro controller hardware

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