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Name of Examination : **Winter 2020** - (Preview)

Course Code & Course Name : **EE303 - Microcontrollers and its Applications**

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Maximum Marks : **60**

Duration : **3 Hrs**

[Edit](#) [Print](#) [View Answer Key](#) [Close](#) **Answer Key Submission Type:** Marking scheme with model answers and solutions of numerical

Instructions:

1. All questions are compulsory.
2. Attempt any three sub-questions from QN:04
3. Illustrate your answer with suitable figures/sketches wherever necessary.
4. Assume suitable additional data; if required.
5. Use of logarithmic table, drawing instruments and non programmable calculators is allowed.
6. Figures to the right indicate full marks.

- 1) A) Show the contents of Accumulator and status of CY, AC and P flag after execution of following instructions [3]
 MOV A,#38H
 ADD A,#2FH
- B) What is conditional jump instruction? Enlist all the conditional jump instructions of 8051 with logical explanation of each instruction. [5]
- C) List out different 8051 addressing modes. Explain each using example instruction. Logically explain each example instruction [7]
- 2) A) i. What is the value of register A after execution of each of the following instructions- [3]
 MOV A,#25H
 RR A
 RR A
 RR A
 RRA
- ii. What is in register A after execution of the following code [3]
 MOV A,#85H
 SWAP A
 ANL A,#0F0H
- B) What is an interrupt? Explain interrupt structure of 8051 microcontroller. Also explain two level interrupt priority, if two interrupts are received simultaneously, how are these handled by 8051? [7]
- C) Find the contents of register A after execution of the following code- [2]
 CLR A
 ORL A,#99H
 CPL A
- 3) A) Design a Microcontroller system using 8051, 4 k bytes of program ROM and 8k bytes of data RAM. Interface the external memory such that starting address for ROM is 1000H & RAM is C000H. Draw detailed memory interface diagram and logically explain the pin connections. [7]
- B) Draw and explain the architecture of 8051 microcontroller in detail. Also explain the PSW(Program status word) register and use of port pins. [8]
- 4) A) What is ZigBee? Give any three application areas with specific application [5]
- B) Discuss timer mode 0 and 1 supported by 8051 microcontroller in detail [5]
- C) Write a program to initialize timer 0 in mode 2. Load TH0 with preset value 55H and load TL0 with starter value 55H. Logically explain the control word formed and program. [5]
- D) Interface DAC808 with with 8051 microcontroller and write a program to generate square and triangular wave. Logically explain the interfacing circuit and program [5]

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