Code No.: 20406

MR12

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

(Affiliated to JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD)

Gundlapochampally (H), Maisammaguda (V), Medchal (M), Medchal-Malkajgiri (Dist), Hyderabad

III B.TECH II SEMESTER SUPPLEMENTARY EXAMINATIONS, DECEMBER-2019

Subject: **SWITCHING THEORY AND LOGIC DESIGN**

Branch: **EEE**

Time: 3 hours **Max. Marks: 75**

Answer any 5 questions of the following **5x15M=75 M**

1. a) Compute the following number conversions [10M]
   (i) $(105.15)_{10}$ to binary number (ii) $(756)_8$ to hexa decimal number
   (iii) $(111100001101)_2$ to octal number (iv) $(4BAC)_{16}$ to binary number
   (v) $(111.0111)_2$ to decimal number
   b) Explain the classification of binary codes? [5M]
2. a) State the boolean algebra postulates and explain in detail with examples. [7M]
   b) Design a 2 input EX-OR and EX-NOR gates using minimum number of NAND and NOR gates respectively. [8M]
3. a) Compare K-map and tabular methods of minimization. [7M]
   b) Reduce the following expressions using K-map [8M]
   (i) $F(A,B,C,D) = \Sigma(5,6,7,9,10,11,13,14,15)$ (ii) $F=\pi(2,7,8,9,10,12)$
4. a) What is hazard in a combinational circuit? How they are eliminated? [7M]
   b) Realize 16X1 Multiplexer using only 2X1 Multiplexer. [8M]
5. a) Explain the comparison between PROM, PLA and PAL. [8M]
   b) How does a Programmable logic device differ from a fixed logic device? What are the primary advantages of using programmable logic devices? [7M]
6. a) Discuss the applications of shift registers. [7M]
   b) Explain the working of JK flip-flop using truth table. [8M]
7. a) What are the capabilities and limitations of finite state machines? [7M]
   b) Explain Merger chart methods of minimal cover table. [8M]
8. a) Enumerate the salient features of ASM charts [8M]
   b) Draw an ASM chart for designing a circuit which is used to count the number of bits in a register that have a value 1. [7M]

Code No.: 20419

MR12

MALLA REDDY ENGINEERING COLLEGE (AUTONOMOUS)

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Gundlapochampally (H), Maisammaguda (V), Medchal (M), Medchal-Malkajgiri (Dist), Hyderabad

III B.TECH II SEMESTER SUPPLEMENTARY EXAMINATIONS, DECEMBER-2019

Subject: **MICROPROCESSORS AND MICROCONTROLLERS**

Branch: **EEE**

Time: 3 hours **Max. Marks: 75**

Answer any 5 questions of the following **5x15M=75 M**

1. Explain briefly about the internal hardware architecture of 8086 architecture with a neat block diagram.
2. a) Write a program to add the contents of the memory location 2000:0500H to the contents of 3000H: 0600H and store the result in 5000H: 0700H. [8M]
   b) Write an ALP to perform the addition operation of two 8-bit numbers in 8086. [7M]
3. a) Explain the DAC interfacing with 8086 microprocessor. [8M]
   b) Compare serial and parallel interface. [7M]
4. Explain how to interface a stepper motor to 8086 microprocessor.
5. a) Write the significance of data communication. Explain the methods of data communication in detail. [10M]
   b) Explain RS-232 serial data standard. [5M]
6. a) Explain the addressing modes of 8051 with examples. [8M]
   b) Explain the registers which are available in 8051 microcontroller. [7M]
7. Draw and discuss the formats and bit definitions of the following SFR's in 8051 microcontroller
   (a) PCON (b) PSW (c) TMOD [3x5=15]
8. Define key Debouncing? Interface the 4X4 HEX keyboard to 8051 microcontroller with a neat schematic.