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, APRIL-2019

Subject: **Switching Theory and Logic Design**

Branch: **EEE**

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

Answer any **FIVE** Questions of the following **5x15 Marks= 75 Marks**

1. (a) What is a complement number system? Explain how a signed number represented?
   (b) Perform the following binary operations
   (i) $(1101.101)_2 + (111.011)_2$ (ii) $(111.111)_2 - (1010.01)_2$
2. Explain the following logic gates with its truth tables.
   (i) AND gate (ii) OR gate (iii) NAND gate
   (iv) NOR gate (v) X-OR gate (vi) X-NOR gate
3. (a) Reduce the following expressions using K-map
   (i) $F(A,B,C,D) = \Sigma(5,6,7,9,10,11,13,14,15)$
   (ii) $F(A,B,C,D) = \Sigma(1,2,3,4,6,8,9,10,11)$
   (b) Write the difference between prime implicant and non-prime implicant.
4. (a) Explain the following
   (i) Multiplexers (ii) De-multiplexers
   (b)What is hazard in a combinational circuit? How they are eliminated?
5. Explain the comparison between PROM, PLA and PAL.
6. (a) Describe the operation of Asynchronous counters.
   (b) Discuss the applications of shift registers.
7. Distinguish between Melay model and Moore model? Also draw its state table and state diagram.
8. (a) Explain in detail the ASM technique of designing a sequential circuit.
   (b) Enumerate the salient features of ASM charts.

Code No.: **20419** **MR12**

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

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

Subject: **Microprocessors and Microcontrollers**

Branch: **EEE**

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

Answer any **FIVE** Questions of the following **5x15 Marks= 75 Marks**

1. a) Explain the physical address formation in 8086. Calculate the physical address with segment address with 1005H and offset address 5555H [10M]
   b) Write short notes on flag register of 8086. [5M]
2. a) How to write an Assembly Language program? [7M]
   b) Write a program to perform a one byte BCD addition. [8M]
3. a) Explain two modes of operations of 8255 PPI. [10M]
   b) Explain the use of handshaking signals used in 8255. [5M]
4. a) What is an interrupt signal? Explain the interrupt sequence in 8086 microprocessor. [8M]
   b) Briefly Explain the general procedure of static memory interfacing with 8086. [7M]
5. Explain the 8251 USART with neat block diagram. Also explain its mode word, command word and status word formats.
6. a) Give the features of 8051 microcontroller. [7M+8M]
   b) Explain the following pins of 8051: AD_0 to AD_7; T_0 and T_1; INT0 and INT1; TxD and RxD.
7. a) Explain the significance of serial communication in 8051supported by RS232 standard.[8M]
   b) Draw and discuss the formats and bit definitions of SCON register in 8051 [7M]
8. a) Draw the circuit diagram to interface the DAC to the microcontroller and explain. [10M]
   b) Give the differences between microprocessors and microcontrollers? [5M]