Register Number:……..

KUMARAGURU
college of technology
character is life

ENTER **B.E/B.TECH DEGREE EXAMINATIONS: NOV/DEC 2023**

(Regulation 2018)

Second Semester

COMPUTER SCIENCE AND ENGINEERING

U18CSI2202**:** Digital Logic and Microprocessor

COURSE OUTCOMES

CO1: Demonstrate how the logic gates and minimization techniques work
CO2: Design a combinational circuit for performing arithmetic functions
CO3: Analyze and study a few sequential circuits
CO4: Develop programing code with 8086 for the basic problems
CO5: Perform interfacing of 8086 with peripherals

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-
PART A (10 x 2 = 20 Marks)
(Answer not more than 40 words)

1.	State De Morgan's theorem.	CO1	[K_2]
2.	Construct a 4:1 mux using only 2:1 mux.	CO1	[K_3]
3.	Tabulate the Characteristic Equation of D Flip flop.	CO2	[K_3]
4.	Differentiate between synchronous counter and asynchronous counter.	CO2	[K_2]
5.	State the advantages of dual slope ADC.	CO3	[K_2]
6.	Calculate the largest value of output voltage from an 8-bit DAC that produces 1.0V for a digital input of 00110010.	CO3	[K_3]
7.	Identify the addressing mode of MOV AX, 55H (BX) (SI)	CO4	[K_1]
8.	Distinguish between JMP and CALL instructions of 8086.	CO4	[K_2]
9.	How many I/O devices with a word length of 1 bit can be connected to 8255 PPI?	CO5	[K_3]
10.	Write the format of the command word to select different modes of keyboard display in 8279.	CO5	[K_2]

Answer any FIVE Questions:-
PART B (5 x 16 = 80 Marks)
(Answer not more than 400 words)

11.	a)	Express the Boolean function F A = + B C′ in a sum of minterms.	(4)	CO1	[K_3]
	b)	Design a logic circuit to convert the BCD code to Excess -3 code.	(12)	CO1	[K_3]

12.	a)	Draw and explain the function of Universal shift register.	(8)	CO2	[K_2]
	b)	Design a synchronous binary counter using T flip – flop.	(8)	CO2	[K_3]
13.	a)	Describe the operation of various types of analog-to-digital converter circuitry.	(16)	CO3	[K_2]
14.	a)	With a neat sketch, elaborate the architecture of 8086.	(8)	CO4	[K_2]
	b)	Write an Assembly Language Program for Matrix Multiplication.	(8)	CO4	[K_3]
15.	a)	Illustrate interrupt structure of 8086 in detail with interrupt vector table and steps involved in each interrupt.	(16)	CO4	[K_2]
16.	a)	Draw the block diagram and elucidate the functions of each and every block of 8251.Write necessary control and mode words to initialize 8251 in synchronous mode.	(16)	CO5	[K_2]

****