20MCA103 DIGITAL FUNDMENTALS &COMPUTER ARCHITECTURE

Marks : 50 **Time : 2 Hr**

	Part A Answer all the questions (10x3=30 marks)	Marks	BL	CO
1	Convert the following: i)(10111.11)2 to decimal ii)(59.25)10 to binary	3	L1	1
2	Explain T and D flip flops	3	L1	2
3	Implement a full adder using two half adders.	3	L2	2
4	List the difference between Synchronous and Asynchronous sequential circuits.	3	L1	2
5	Express -49 in sign magnitude, 1's complement & 2's complement representation	3	L2	1
6	Add the following BCD numbers: 829 and 623	3	L1	1
7	What are the different types of shift registers.	3	L1	2
8	Draw the figure of a octal encoder	3	L2	1
9	How do you convert a JK flip flop to T and D flip flops.	3	L1	2
10	Convert to canonical or standard form Y= AB+BC	3	L2	1
	Part B **Answer any 2 questions (10+10=20 marks)**			
6	**Module 1** a. Construct a 32x1 Multiplexer using 8x1 Multiplexer and 4x1 Multiplexer b. Design a full adder with necessary diagrams	 5 5	 L3 L1	 1 1
	OR			
7	a. Briefly explain De Morgan's Law. b. Given f=Σ m (2,3,4,5,10,11) Write down the Boolean Expression. Simplify the equation using K map and Realize the circuit.	4 6	L2 L2	1 1
8	**Module 2** a. Design a modulo 10 asynchronous counters using T flip flops b. Explain JK flipflop	 6 4	 L2 L2	 2 2
	OR			
9	a. Explain parallel in serial out shift register using necessary figures. b. Design a 3 bit synchronous UP counter.	5 5	L2 L2	2 2