

Day and Date: Friday, 17/06/2022

Time: 9.30 to 1.15

Seat No:

Max. Marks- 100

Instructions:

- Question No. 1 is compulsory.
- Figure to the right indicate full marks.
- Assume suitable data wherever necessary.

BT	CO's	Q. No.		Marks
		Q.1.	Attempt the following.	40
3	CO1	a.	i) Sketch the logic symbol of 2- input XNOR gate and draw its truth table. Why it is called as coincidence detector? ii) Derive all other gates from NAND gate .	5 5
3	CO1	b.	Sketch & analyze the working of 8 to 1 multiplexer with the help of block diagram, logic diagram & truth table.	10
4	CO2	c.	i) Draw a logic symbol of S-R FLIP-FLOP with -ve edge triggered clock input & analyze its working using truth table. ii) Draw a logic symbol of T FLIP-FLOP with -ve edge triggered clock input & analyze its working using truth table.	5 5
4	CO1	d.	Analyze & minimize the following expression using k-map i) $Y(A,B,C)=\sum m(1,3,5,7)$ ii) $Y(A,B,C)=\sum m(0,1,4,5)$	10
		Q.2.	Attempt the following.	20
4	CO2	a.	Draw a logic diagram & timing waveform of 2-bit asynchronous up counter using J-K flipflops and analyze its working. OR Draw a logic diagram of 2-bit ripple up/down counter using negative edge triggered J-K flipflops and analyze its working	8
4	CO2	b.	Analyze mod-6 asynchronous counter using T-flipflops.	8
4	CO2	c.	Analyze the effect of propagation delay in ripple counters.	4
		Q.3.	Attempt any 4 of the following sub questions.	20
4	CO4	a.	Analyze the working of 4 - bit gray to binary code converter with the help of Verilog code.	5

4	CO4	b.	Analyze the working of negative edge triggered T flip flop with the help of Verilog code.	5
4	CO4	c.	Analyze the working of 4 bit binary down counter with the help of Verilog code.	5
4	CO4	d.	Analyze the working of 4 - bit binary to grey code converter with the help of Verilog code.	5
4	CO4	e.	Analyze the working of 2 to 4 decoder with the help of Verilog code.	5
		Q.4	Attempt the following.	20
2	CO3	a	Describe the working of R/W memory with the help of block diagram. OR Describe static RAM cell with suitable diagram.	5
2	CO3	b	What is PLA? Describe with the help of suitable diagram.	5
2	CO3	c	What are the basic configuration of PLDs? Draw its suitable diagrams.	5
2	CO3	d	Compare between CPLD & FPGA.	5
