

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV/DEC 2025***Fifth Semester**Electronics and Communication Engineering***EC3552- VLSI and CHIP Design***Regulations - 2021**Duration: 3 Hrs.**Maximum: 100 Marks***PART - A (ANSWER ALL QUESTIONS) (Marks 10*2=20)**

<i>Q.No</i>	<i>Questions</i>	<i>BTL</i>	<i>CO</i>	<i>Marks</i>
1.	How does MOSFET act as a switch?	L1	1	2
2.	List the types of power dissipation.	L1	1	2
3.	What is meant by ratioed logic?	L1	2	2
4.	Define Elmore constant.	L1	2	2
5.	Compare Latch and Flip-flop.	L2	3	2
6.	Define Clock skew and Clock Jitter.	L1	3	2
7.	Draw the architecture of Memory organization.	L1	4	2
8.	Compare between channeled and channel less gate array.	L1	4	2
9.	What is twin tub process?	L1	5	2
10.	List the fabrication process of IC technology.	L1	5	2

PART - B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a Explain in detail about the ideal I-V characteristics and non-ideal I-V characteristics of a NMOS and PMOS devices. Or	L2	1	16
	b Illustrate the concept of static and dynamic CMOS design.	L2	1	16
12.	a Explain the pass transistor logic design? Draw the logic circuit of XOR gate using transmission gates. Or	L2	2	16
	b Explain the concept of low power design principles in combinational logic circuits.	L2	2	16
13.	a i Explain in detail about the pipeline concepts used in sequential circuits.	L2	3	8
	ii Relate D flip flop using transmission gate.	L2	3	8
	Or			
	b Classify the techniques to reduce switching activity in a static and dynamic CMOS circuits.	L2	3	16

14.	a	Explain the general architecture of FPGA and classify the different programmable blocks used.	L5	4	16
		Or			
	b i	With neat diagram explain the Baugh-wooley multiplier.	L5	4	8
	ii	Interpret a 4-bit barrel shifter using a multiplexer.	L5	4	8
15.	a	Interpret the microchip design process in ASIC with neat diagrams.	L5	5	16
		Or			
	b	Explain the concept of BIST, Test benches and its types in detail.	L5	5	16