

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***UG/PG DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2026****Second Semester****Applied Electronics****PAPE2401 - APPLICATIONS SPECIFIC INTEGRATED CIRCUITS****Regulations – 2024****Duration : 3 Hrs****Maximum : 100 Marks****PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)**

Q.No	Questions	BLT	CO	Marks
1.	What is the full custom ASIC design?	L1	1	2
2.	Recall drains current equation of NMOS and PMOS transistors.	L1	1	2
3.	Define “Antifuse”.	L1	2	2
4.	Justify why Actel architecture is called as a non deterministic architecture?	L2	2	2
5.	Name one industry that heavily relies on Programmable ASICs.	L1	3	2
6.	How does Stratix differ from other FPGA families?	L1	3	2
7.	List the steps involved in logic synthesis.	L1	4	2
8.	What are the different types of algorithm used in placement?	L1	4	2
9.	Which algorithm is commonly used for Fast Fourier transform (FFT) calculations in high-performance computing?	L1	5	2
10.	Why are delta-sigma modulators preferred in high-performance filtering applications?	L1	5	2

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

Q.No	Questions	BLT	CO	Marks
11.	a Explain the ASICs design flow and With neat diagram of custom ASICs.	L2	1	16
	Or			
	b Explain the operation of a transistor as a resistor in highlighting its current-voltage characteristics and Calculate the total parasitic capacitance of a transistor amplifier circuit.	L2	1	16
12.	a Design and Analyze a Data Storage System using EEPROM Technology and Implemented on Altera FLEX Architecture for an any Specific Application.	L4	2	16
	Or			
	b Examine the impact of Xilinx I/O Block placement and routing on FPGA performance of power consumption.	L4	2	16
13.	a Explain a programmable ASIC architecture using Cyclone FPGA for a real-time processing application.	L2	3	16
	Or			

	b	Explain and Implementation of Micro-Blaze/Nios-based Embedded System for Industrial Automation Control.	L2	3	16
14.	a	Explain and evaluate the results of logic synthesis and ASIC floor planning for focusing on digital circuit implementation.	L2	4	16
		Or			
	b i	Explain about routing with neat diagram.	L2	4	8
	ii	Explain about placement improvement and timing driven placement method.	L2	4	8
15.	a	Apply the designed algorithms to solve real-world problems on Image filtering using FFT-based convolution and Image compression using DCT-based transform coding.	L4	5	16
		Or			
	b	Develop and optimize a digital camera system by using the algorithms for Application-Specific Integrated Circuits design incorporating with Image Processing.	L4	5	16
