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CBCS SCHEME

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BEC714A

Seventh Semester B.E./B.Tech. Degree Examination, June/July 2026
Application Specific Integrated Circuit

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	a.	Differentiate between full custom, semicustom and programmable ASIC's. Explain their applications.	10	L2	CO1
	b.	Illustrate the design flow of ASIC with a suitable diagram.	10	L2	CO1
		OR			
Q.2	a.	What is the role of I/O cells in ASIC design? Explain with an example.	10	L2	CO1
	b.	Define Data path and explain any 8 datapath elements with neat diagram.	10	L2	CO3
		Module – 2			
Q.3	a.	Explain ASIC Library Cell Design.	08	L2	CO2
	b.	With the help of relevant diagram, explain logical area and logical efficiency.	12	L2	CO1
		OR			
Q.4	a.	With the help of neat diagram explain ACT – 1 Logic Module.	10	L3	CO2
	b.	With the help of neat diagram explain Xilinx XC3000 CLB.	10	L3	CO3
		Module – 3			
Q.5	a.	Explain Hierarchical Design for Half Adder with schematic example.	10	L2	CO3
	b.	Explain the use of a bus to simplify the schematic with an example.	10	L3	CO3
		OR			
Q.6	a.	Explain Look Ahead algorithm with the help of relevant diagrams.	10	L2	CO5
	b.	Write a brief note on : i) Constructive Partitioning ii) Iterative Partitioning Improvement	10	L3	CO5
		Module – 4			
Q.7	a.	Explain Clock Planning with the help of neat diagrams.	10	L3	CO3
	b.	Explain the channel definition process importance in floor planning and its importance.	10	L3	CO3
		OR			
Q.8	a.	Explain the iterative placement improvement technique and its relevance in physical design.	10	L3	CO5
	b.	Explain the following in ASIC floor plan : i) Clock Planning ii) Power Planning	10	L2	CO5
		Module – 5			
Q.9	a.	i) List goals and objectives of global routing ii) Explain Back annotation.	10	L3	CO4
	b.	Explain global routing between blocks.	10	L4	CO4
		OR			
Q.10	a.	Explain with relevant diagram, Area Routing Algorithms.	10	L4	CO4
	b.	i) Write a brief note on Global routing Methods. ii) Explain Measurement of Channel Density.	10	L3	CO4

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