VASAVI COLLEGE OF ENGINEERING *(AUTONOMOUS)*, HYDERABAD
Accredited by NAAC with A++ Grade

B.E. (E.C.E.) VII-Semester Main & Backlog Examinations, Dec.-23/Jan.-24

FPGA Architectures and Applications (PE-III)

Time: **3 hours**

Max. Marks: **60**

*Note: Answer all questions from **Part-A** and any **FIVE** from **Part-B***

Part-A (10× 2 = 20 Marks)

Q. No.	Stem of the question	M	L	CO	PO
1.	What is a programmable gate array?	2	1	1	1
2.	Differentiate between SRAM and DRAM	2	4	1	2
3.	List the applications of FPGAs	2	1	2	1
4.	What are the dedicated specialized components of FPGA?	2	1	2	1
5.	What are the features of Altera FPGAs?	2	2	3	2
6.	Mention few commercially available FPGAs	2	1	3	2
7.	Briefly explain about simulated annealing	2	2	4	5
8.	What is meant by routing in FPGAs?	2	3	4	1
9.	What is fault coverage?	2	1	5	1
10.	What is the difference between front end and backend tools?	2	4	5	2

Part-B (5×8 = 40 Marks)

Q. No.	Stem of the question	M	L	CO	PO
11. a)	With the help of a diagram, explain the FPGA design flow	5	3	1	2
b)	Write the comparison between PLA and PAL	3	4	1	3
12. a)	Explain about programmable I/O blocks in FPGAs	4	1	2	2
b)	Explain how area-efficiency depends on logic block functionality	4	4	2	2
13. a)	Draw the ACT3 Architecture and explain in detail	5	2	3	2
b)	Explain about AMD FPGA	3	2	3	1
14. a)	With the help of an example, explain the iterative improvement placement	4	3	4	1
b)	Explain the computational signal delay in RC tree networks	4	2	4	2

15. a)	Explain a back end tool for FPGA and ASIC design	4	1	5	3
b)	What is the significance of timing verification in FPGA design?	4	4	5	4
16. a)	Explain Various programming technologies in FPGAs	4	2	1	3
b)	Draw and explain the architecture of Programmable logic block in FPGA	4	2	2	1
17.	Answer any *two* of the following:				
a)	Compare the Vertex II and Spartan II FPGAs	4	4	3	1
b)	Explain the Maze routing with an example	4	3	4	2
c)	What are various faults occur in FPGAs? Explain with examples	4	3	5	2

M : Marks;　L: Bloom's Taxonomy Level;　CO; Course Outcome;　PO: Programme Outcome

i)	Blooms Taxonomy Level – 1	22.50%
ii)	Blooms Taxonomy Level – 2	30%
iii)	Blooms Taxonomy Level – 3 & 4	47.50%

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