

Reg. No.

--	--	--	--	--	--	--	--	--	--

M.E. / M.TECH. DEGREE EXAMINATIONS, MAY/JUNE 2017
SECOND SEMESTER

APPLIED ELECTRONICS
AL16202 – ASIC AND FPGA DESIGN
(Regulation 2016)

Q. Code: 284304

Time: Three Hours

Maximum : 100 Marks

Answer ALL questions

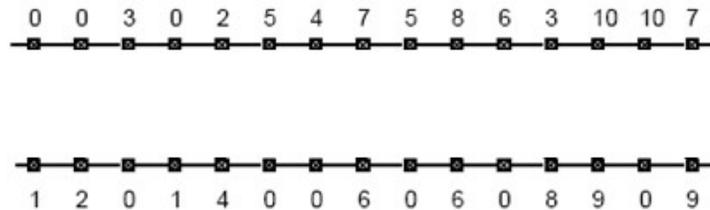
PART A - (10 X 2 = 20 Marks)

1. What are Standard Cells?
2. What is meant by circuit extraction?
3. What is hypergraph?
4. State the goals and objectives of global routing.
5. What is meant by Original Equipment Manufacturer (OEM)?
6. Define controllability and observability.
7. What is meant by technology mapping?
8. Define Elmore constant.
9. What are three forms of SOC?
10. Classify IP Cores.

PART B - (5 X16 = 80 Marks)

11. (a) Discuss in detail different types of ASIC Design. **(16)**
(OR)
(b) Explain in detail various programming technologies used in FPGA. **(16)**
12. (a) (i) With a neat diagram, explain VLSI Physical Design Flow. **(8)**

- (ii) Calculate the minimum number of tracks required for the problem instance shown in figure below by using left edge algorithm. (8)



(OR)

- (b) Explain in detail Kernighan Lin algorithm with an example and mention its applications. (16)
13. (a) (i) With a neat diagram, explain FPGA Based Design Flow. (8)
(ii) Explain in detail how FSM can be synthesised in VHDL. (8)
- (OR)
- (b) (i) Discuss in detail various types of low level design languages. (8)
(ii) With necessary diagrams, explain in detail Boundary Scan testing. (8)
14. (a) With necessary diagram, explain the architecture of XC4000 CLB and its features of configurability. (16)
- (OR)
- (b) (i) Explain how 2-to-1 MUX is viewed as a function wheel. (8)
Explain architecture of ACT1 Logic Module as a set of function wheel.
(ii) With necessary diagrams, explain the features of Altera MAX 9000. (8)
15. (a) (i) With a neat diagram, explain in detail SoC Co-Design Flow. (8)
(ii) Discuss in detail various SoC Testing Issues. (8)
- (OR)
- (b) With necessary diagrams, explain in detail hardware and software co-design of digital camera. (16)