

www.FirstRanker.com

www.FirstRanker.com

| Roll No. | Total No. of Pages:02 |
|-----------------------------|-----------------------|
| Total No. of Questions : 09 | |
| B.Tech (ECE) (| (Sem.–7) |
| VLSI | |
| Subject Code : | EC-406 |
| Paper ID:[A0 | 0330] |
| | Mass Masles . CO |

Time: 3 Hrs.

Max. Marks: 60

INSTRUCTIONS TO CANDIDATES :

- 1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
- 2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt any FOUR questions.
- 3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt any TWO questions.

SECTION-A

1. Answer briefly :

- a) What is Subprogram? Discuss the types of subprograms available in VHDL.
- b) Differentiate between combinational & sequential circuits with examples.
- c) Explain the advantages of using FPGAs in IC design.
- d) Describe the Logical & arithmetic operators in VHDL.
- e) Discuss the format of Concurrent statement with example.
- f) Explain the concurrent assertion statement in VHDL.
- g) Enumerate the difference between Data objects & Data Types.
- h) What are different specifications for the design of digital systems?
- i) Differentiate between microcomputer and main frame computer.
- j) What are the advantages of PLDs?



www.FirstRanker.com

SECTION-B

- 2. Explain data flow, structural and behavioral modeling with suitable examples.
- 3. Give the Behavioral 1 model of 4 bit SISO right shift register.
- 4. Write the VHDL code for 4:1 MUX using structural modeling.
- 5. How a simple microcomputer works? Explain its implementation using VHDL.
- 6. Implement Half Subtractor using PLAs.

SECTION-C

- 7. Write briefly :
 - a) With a neat block diagram, explain PLA.
 - b) Implement the functions, $f1(x,y,z) = \Sigma m(1,2,3,7)$ and $f2(x,y,z) = \Sigma m(0,1,2,6)$ using PLA. Ranker.cor
- 8. Write a short note on :
 - a) Generics
 - b) Operators in VHDL
 - c) Difference between CPLD & FPGA
- 9. Write a VHDL code in structural style of modeling for SOP for the following expression: $F = \Sigma m(1,4, 6, 8, 9, 11, 12, 14, 15) + \Sigma d (2, 5, 7)$