

Reg.No. \_\_\_\_\_

**Karunya UNIVERSITY**

(Karunya Institute of Technology &amp; Sciences)

(Declared as Deemed-to-be University under Sec.3 of the UGC Act, 1956)

**End Semester Examination – Nov/Dec – 2016**

**Code : 14EC3073**  
**Sub. Name : FPGA for industrial Applications**

**Semester : 2016-17 ODD**  
**Duration : 3hrs**  
**Max. marks : 100**

**ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)**

Q. No.	Sub Div.	Questions	Course Outcome	Marks
1.	a.	It is required to maintain the temperature of room at 25°C. Suggest a suitable controller with FPGA coding in VHDL language.	CO2	10
	b.	Design Excess 3 code convertor using Programmable Logic Array	CO1	10
(OR)				
2.	a.	Give the design flow process diagram of ASIC and explain the functions of each block	CO3	12
	b.	Mention the pros and cons of SRAM technology used in Xilinx.	CO3	8
3.	a.	Give the importance of programmable switch matrix in Xilinx FPGA	CO3	5
	b.	Implement the following function using Xilinx XC 3000. How many CLBs and LUTs are required $F(a,b,c,d,e)=a.b.+a.b'.c+ae'+d.e$	CO3	15
(OR)				
4.	a.	Describe the input-output block available in Xilinx XC 4000	CO3	10
	b.	Design a combinational circuit which has one data input and many output lines. Write a VHDL code for the above combinational circuit	CO2	10
5.	a.	Design a Controllers for pressure Process station with Xilinx FPGA.	CO3	15
	b.	Justify how full- custom design have more manufacturing lead time than semicustom design.	CO3	5
(OR)				
6.	a.	Explain Altera MAX 7000 Combinational Logic blocks	CO3	15
	b.	Discuss importance of if else statement in behavioural style of modelling.	CO2	5
7.	a.	With neat sketch, explain Xilinx 3000 Configuration Logic Block	CO3	15
	b.	Distinguish between: sequential and concurrent statement in VHDL	CO2	5
(OR)				
8.	a.	Mention the benefits of using semicustom design in ASIC. Explain the types of semicustom design.	CO3	10
	b.	Discuss the different data operators of VHDL	CO2	10
<b><u>Compulsory:</u></b>				
9.	a.	Design a PROM device to realize combinational logic using two functions $F_1(x,y,z) = x'y+yz'$ $F_2(x,y,z) = xyz+xy+xz$	CO1	10
	b.	Design 2 bit magnitude comparator using PROM	CO1	5

ALL THE BEST