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



**End Semester Examination – Nov/Dec – 2017**

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| **Code :** | **14EC2068** | **Duration :** | **3hrs** |
| **Sub. Name :** | **VHDL** | **Max. marks :** | **100** |

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

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| Q. No. | Sub Div. | Questions | Course  Outcome | Marks |
| 1. | a. | For the given signal object perform the following operation and obtain the result.  Signal a: std\_logic\_vector(7 downto 0);  A<= "11011011"  A sll2 ;  A ror3;  A sra 4;  A(4 downto 0) &"111"; | CO1 | 8 |
| b. | signal a: std\_logic\_vector(7 downto 0);  For the above statement if the value of a is "00010110" then  a[6]= --- and a[4]= --- . | CO1 | 2 |
| c. | Explain the various operators used in VHDL. | CO1 | 10 |
| (OR) | | | | |
| 2. | a. | Express VHDL Structural modeling program for the following expression.  Y = (A. B) + C | CO2 | 10 |
| b. | Mention and brief the different object classes in VHDL. Show how to create object in VHDL. | CO1 | 10 |
| 3. | a. | Use VHDL selected signal assignment statement and design 4X1 Multiplexer. | CO2 | 7 |
|  | b. | What are useage of Next and Exit statement in loop also mention the differences exist between them in VHDL? | CO1 | 3 |
|  | c. | Show the syntax of IF statement.  Using IF statement design a comparator. | CO2 | 10 |
| (OR) | | | | |
| 4. | a. | Develop a traffic light controller using VHDL. | CO3 | 20 |
| 5. | a. | Design Ring counter using VHDL. | CO2 | 10 |
|  | b. | Briefly discuss various Arrtibutes in VHDL | CO1 | 10 |
| (OR) | | | | |
| 6. | a. | Develop a full adder VHDL test bench | CO3 | 10 |
|  | b. | Design PIPO Shift register using VHDL | CO2 | 10 |
| 7. | a. | Discuss different VHDL loop statements. | CO1 | 10 |
|  | b. | Design RS and T flip flop | CO2 | 10 |
| (OR) | | | | |
| 8. | a. | From the given information design FSM using VHDL program. | CO3 | 20 |
|  | | Compulsory: |  |  |
| 9. | a. | What are the two kinds of sub program in VHDL? Write the syntax of it. | CO1 | 5 |
|  | b. | Develop a VHDL package for Multiplexer circuit. | CO2 | 15 |

ALL THE BEST