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



**UNIVERSITY**

(Karunya Institute of Technology & Sciences)

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

**End Semester Examination – April/May– 2017**

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| **Code :** | **14EC2003** | **Duration :** | **3Hrs** |
| **Sub. Name :** | **DIGITAL ELECTRONICS** | **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. | Convert the binary number 1011.011(2)into its decimal equivalent. | CO1 | 5 |
| b. | Convert the hexadecimal number B65F(16) into its decimal equivalent. | CO1 | 5 |
| c. | Convert the octal number 631.4(8) into its decimal equivalent. | CO1 | 5 |
| d. | Convert the binary number 11101111(2) into its decimal equivalent. | CO1 | 5 |
| (OR) | | | | |
| 2. | a. | Write the steps to find the 10’s complement of 52520(10) | CO1 | 5 |
| b. | Write the steps to find the 9’s complement of 52520(10) | CO1 | 5 |
| c. | Write the steps involed in converting the binary number 010110001101011.111100000110(2) into its octal equivalent. | CO1 | 10 |
| 3. | a. | Discuss any 2 basic theorems and properties of Boolean algebra. | CO1 | 10 |
| b. | Venn diagrams may be used to illustrate the postulates of Boolean algebra – Justify the statement with an example. | CO1 | 10 |
| (OR) | | | | |
| 4. | a. | Differentiate between canonical and standard forms. | CO1 | 10 |
| b. | List and explain the digital logic gates using necessary tables. | CO1 | 10 |
| 5. | a. | Simplify the Boolean function: F = x’yz + x’yz’ + xy’z’ + xy’z | CO1 | 10 |
| b. | Discuss Quine-McClusky method through suitable example. | CO1 | 10 |
| (OR) | | | | |
| 6. | a. | Simplify the Boolean function: F(w,x,y,z) = ∑(0, 1, 2, 4, 5, 6, 8, 9, 12, 13, 14). | CO1 | 10 |
| b. | Explain the steps involved in implementing NAND gate through an example. | CO1 | 10 |
| 7. | a. | Discuss Full Adder with necessary truth table. | CO2 | 14 |
| b. | Explain the working of Half subtractor. | CO2 | 6 |
| (OR) | | | | |
| 8. | a. | Elaborate the working of Binary Parallel Adder through suitable example. | CO2 | 14 |
|  | b. | Write a short note on JK Flip-Flop. | CO2 | 6 |
|  | | **Compulsory:** |  |  |
| 9. | a. | Implement a 3 bit binary converter to gray code converter on PROM. | CO3 | 10 |
| b. | Discuss the synchronous counters in detail. | CO3 | 10 |

ALL THE BEST