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



**End Semester Examination – Nov/Dec – 2018**

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| **Code :** | **18EC3032** | **Duration :** | **3hrs** |
| **Sub. Name :** | **DIGITAL SYSTEM & ASIC DESIGN** | **Max. marks :** | **100** |

**ANSWER ANY FIVE QUESTIONS (5 x 16 = 80 Marks)**

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| **Q. No.** | **Sub Div.** | **Questions** | **Course**  **Outcome** | **Marks** |
| 1. | a. | Design a Full subtractor circuit. | CO1 | 6 |
| b. | Design a 4 bit asynchronous binary up Counter. | CO1 | 10 |
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| 2. | a. | Differentiate between PLD and CPLD with respect to its architecture. | CO2 | 6 |
| b. | Design a PLA to realize the following three logic functions  F1(A,B,C,D,E) = A’B’D’ +B’C D’+A’BCDE’  F2(A,B,C,D,E) = A’BE’ + B’C D’E  F3(A,B,C,D,E) = A’B’D’ +B’C’D’E+A’BCD | CO2 | 10 |
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| 3. | a. | List the types of ASIC and mention the differences between them. | CO3 | 6 |
| b. | Construct a negative edge triggered flip flop using 2 latches and justify the same with timing diagram. | CO3 | 10 |
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| 4. | a. | Explain the functional behavior of the Actel ACT 1 logic module. | CO4 | 6 |
| b. | Explain Xilinx XC3000 CLB architecture. | CO4 | 10 |
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| 5. | a. | Enumerate Altera MAX 7000 interconnect architecture. | CO5 | 8 |
| b. | With Xilinx LCA interconnect architecture, discuss the different types of interconnections. | CO5 | 8 |
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| 6. | a. | Indicate the difference between synchronous and asynchronous sequential circuits. | CO1 | 4 |
| b. | Design a BCD to Excess 3 code converter circuit. | CO1 | 12 |
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| 7. | a. | Describe the various blocks of CPLD architecture and indicate how it is different from PLD architecture. | CO2 | 8 |
| b. | E:\official\LMS\moore.png  Fig 1  Draw the ASM chart for the state diagram given in Fig 1. | CO2 | 8 |
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| **COMPULSORY QUESTION (1 x 20 = 20 Marks)** | | | | |
| 8. | a. | Expand CFI and indicate its significance. | CO6 | 4 |
| b. | Expand EDIF and mention its significance. List different versions of EDIF and indicate its important features. | CO6 | 6 |
| c. | With neat flowchart, describe the Xilinx FPGA design flow. | CO6 | 10 |