

(26)

QP Code :4893**(3 Hours)****[Total Marks :80**

- N.B.** (1) Question no 1 is compulsory
 (2) Out of remaining questions, attempt any three questions
 (3) Assume suitable data if required
 (4) Figures to the right indicate full marks

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|--------|---|----|
| 1. (a) | Compare combinational logic circuits with sequential circuits | 5 |
| (b) | Compare PLA and PAL | 5 |
| (c) | Explain static RAM | 5 |
| (d) | Explain Master-Slave JK Flipflop | 5 |
| 2. (a) | State and prove laws of Boolean Algebra | 10 |
| (b) | Using Quine McClusky method, minimize the following
$F(A, B, C, D) = \sum m(0,2,5,7,8,10,12,15)$ | 10 |
| 3. (a) | Implement Full adder using 8:1 multiplexers | 10 |
| (b) | Write VHDL code for 3-bit up counter | 10 |
| 4. (a) | Design a two bit digital comparator and implement using basic logic gates | 10 |
| (b) | Draw a neat circuit of BCD adder using IC 7483 | 10 |
| 5. (a) | What is universal shift register? Explain any two modes of shift register | 10 |
| (b) i) | Convert a D FF to T FF | 5 |
| ii) | Convert a JK FF to T FF | 5 |
| 6. (a) | Design a Synchronous counter using T FF for the sequence given below:
1-2-3-4-5-6-7-1 | 10 |
| (b) | Define the following terms for logic families | 10 |
| i) | Propagation Delay | |
| ii) | Fan out | |
| iii) | Power Dissipation | |
| iv) | Noise Margin | |
| v) | Fan in | |

JP-Con.: 10636-15.