

**III B. Tech I Semester Supplementary Examinations, October/November - 2018****DIGITAL SYSTEM DESIGN & DIGITAL IC APPLICATIONS**

(Common to Electronics Computer Engineering and Electronics Instrumentation Engineering)

Time: 3 hours

Max. Marks: 70

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)  
 2. Answering the question in **Part-A** is compulsory  
 3. Answer any **THREE** Questions from **Part-B**

**PART -A**

- |   |    |  |      |
|---|----|--|------|
| 1 | a) | Explain about data objects in VHDL.                  | [3M] |
|   | b) | Discuss about Technology Libraries.                  | [4M] |
|   | c) | Explain briefly Static RAM Internal structure.       | [4M] |
|   | d) | Explain about CMOS steady state electrical behavior. | [4M] |
|   | e) | Explain the significance of Dual Priority encoder.   | [4M] |
|   | f) | Compare latches and flip flops.                      | [3M] |

**PART -B**

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|---|----|--|------|
| 2 | a) | Explain the Packages and Libraries of VHDL?  | [8M] |
|   | b) | Compare and contrast between VHDL and Verilog HDL.                                     | [8M] |
| 3 | a) | Explain why place and route tools are used in VHDL with the help of data flow diagram. | [8M] |
|   | b) | Explain in detail about Post Layout Timing Simulation.                                 | [8M] |
| 4 | a) | Explain the internal structure of PROM and list its advantages.                        | [8M] |
|   | b) | Describe DRAM with an appropriate diagram and explain about its timings.               | [8M] |
| 5 | a) | Explain dynamic electrical behavior of a CMOS.   | [8M] |
|   | b) | What are the salient features of ECL? and explain its internal structure               | [8M] |
| 6 | a) | Write the VHDL code for 16 bit barrel shifter.   | [8M] |
|   | b) | Design a 4 bit carry look ahead adder using gates and write the VHDL code for it.      | [8M] |
| 7 | a) | Write a VHDL program to design a modulo-8 counter.                                     | [8M] |
|   | b) | Explain in detail about the working of Johnson Counter using 74 LS194.                 | [8M] |

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