

**Roll No.**

**Total No. of Questions : 09**

**Total No. of Pages : 02**

**B.Tech.(ECE) / (ETE) (2011 Onwards) (Sem.-6)**

# VLSI DESIGN

**Subject Code : BTEC-604**

Paper ID : [A2318]

**Time : 3 Hrs.**

**Max. Marks : 60**

**INSTRUCTION TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students has to attempt any FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students has to attempt any TWO questions.

## SECTION-A

- i. **Write briefly :**
  - a. State the advantages of VHDL.
  - b. What are object types involved in VHDL?
  - c. Differentiate between package and library.
  - d. Differentiate between synthesis and simulation.
  - e. What are the various CAD tool available in digital circuit design?
  - f. What do you understand by the term threshold voltage?
  - g. Write the VHDL code using case statement.
  - h. Explain the term generic.
  - i. What is use of process in VHDL?
  - j. What is entity?

### SECTION-B

2. What are the different types of VHDL modeling? Explain with the examples.
3. Draw the diagram of full adder. Write the VHDL code for full adder.
4. What is MOS transistor? Discuss enhancement and depletion mode of transistor.
5. Write VHDL code for MOD 10 counter.
6. What are types of delays in VHDL? Explain how they can be modelled in VHDL design.

### SECTION-C

7. Write VHDL code for 4:1 MUX using three different architecture.
8. Discuss the effect of device scaling on circuit.
9. Write 4 bit shift register VHDL code using if statement.