



(Following Paper ID and Roll No. to be filled in your Answer Book)

**PAPER ID : 121754**

Roll No.

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## B. Tech.

(SEM. VII) (ODD SEM.) THEORY  
EXAMINATION, 2014-15

### DIGITAL SYSTEM DESIGN USING VHDL

Time : 3 Hours]

[Total Marks : 100

**Note :** Answer all the questions

- 1 Answer any **four** : **5×4=20**
- a) How do you model a flip flop using VHDL ?
  - b) Write the difference between transport and inertial delay
  - c) What is difference between signals and constants ?
  - d) How do you model a sequential machine ?
  - e) What is meant by TEXTIO ?
  - f) Brief about procedure
- 2 Answer any **two** : **10×2=20**
- a) Design a serial adder with a accumulator .
  - b) Illustrate the operation of multiplication of two signed binary numbers
  - c) Explain about a linked state machine.

- 3** Answer any **two** : **10×2=20**
- a) Perform the floating point binary multiplication operation for the numbers  
 $01110001.11 * 1001.1001$
  - b) Perform the floating point binary division operation for the numbers  
 $0111000.11 / 1001.1001$
  - c) Draw and explain the architecture of Xilinx 3000 Series FPGA
- 4** Answer any **two** : **10×2=20**
- a) Draw and explain the static RAM
  - b) Describe a simplified 485 Bus model.
  - c) How is memory interfacing done using microprocessor bus ?
- 5** Answer any **two** : **10×2=20**
- a) Draw and explain the UART Design
  - b) Describe the working of MC68HC05 Microcontroller
  - c) How is microcontroller designed ?