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Fifth Semester B.E. Degree Examination, Aug./Sept. 2020

Verilog HDL

Time: 3 hrs.

Max. Marks: 80

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. What is HDL? Explain typical design flow for designing of VLSI IC circuits and importance of it. (10 Marks)
- b. Define the following terms with examples : (06 Marks)
 - i) Module
 - ii) Instances
 - iii) Instance name.

OR

- 2 a. What is stimulus in verilog? Explain components of a simulation with an example of ripple carry counter. (12 Marks)
- b. Explain trends in HDL's. (04 Marks)

Module-2

- 3 a. Explain the following lexical conventions (08 Marks)
 - i) Whitespace
 - ii) Operators
 - iii) Strings
 - iv) Keywords.
- b. Explain the system tasks in verilog with examples. (08 Marks)

OR

- 4 a. What is the module definition in verilog? And explain the components of a verilog module. (10 Marks)
- b. What are the different ports in verilog? Explain internal and external port connection rules. (06 Marks)

Module-3

- 5 a. Design a 4-to-1 multiplexer using primitives in verilog and draw a logic diagram for it. (10 Marks)
- b. What are rise, fall and turn-off delays? How they are specified in verilog? (06 Marks)

OR

- 6 a. Discuss the different assignment statements with example in verilog HDL. (08 Marks)
- b. Explain the following : (08 Marks)
 - i) Bitwise operators
 - ii) Concatenation
 - iii) Conditional operators
 - iv) Replication operators.

Module-4

- 7 a. Write the difference between blocking and non-blocking statement. (06 Marks)
- b. Explain the following with proper examples (06 Marks)
 - i) For loop statement
 - ii) Repeat
 - iii) Forever loop
- c. What is inferring latch? Explain casex and casez with examples. (04 Marks)

OR

- 8 a. Explain sequential and parallel blocks with examples. (08 Marks)
- b. Write a verilog program for 4 to 1 multiplexer using if-else-if conditional statement. (08 Marks)

Module-5

- 9 a. Explain the declaration of constant, variable and signal in VHDL with example. (08 Marks)
- b. Explain font convention in VHDL. (08 Marks)

OR

- 10 a. What are the different data types and attributes in VHDL and explain each. (08 Marks)
- b. Write a VHDL program for 4-bit magnitude comparator. (08 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and/or equations written eg, 42+8 = 50, will be treated as malpractice.