

CBCS SCHEME



USN

Seventh Semester B.E./B.Tech. Degree Examination, Dec.2024/Jan.2025

Advanced VLSI

21EC71

Time: 3 hrs.

Max. Marks: 100

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

Module-1

- 1 a. Explain ASIC design flow with neat flow chart. (10 Marks)
- b. Explain Booth Encoding multiplier with an example. (10 Marks)

OR

- 2 a. Describe different cell compilers and I/O cells. (10 Marks)
- b. With a neat diagram, explain the operation of conditional sum adder. Mention its advantages and disadvantages. (10 Marks)

Module-2

- 3 a. Explain the concept of measurement of delay in Floorplanning. (10 Marks)
- b. Explain the following : (10 Marks)
 - i) Power planning
 - ii) Clock planning

OR

- 4 a. Write an algorithm for iterative placement improvement method and explain briefly. (10 Marks)
- c. Explain the goals and objectives of global routing in detail. (10 Marks)

Module-3

- 5 a. Explain factors in randomizing the stimulus to a design. (10 Marks)
- b. Draw the diagram of layered test bench of system verilog and describe the function of each layer. (10 Marks)

OR

- 6 a. Describe the various array methods with an example. (08 Marks)
- b. Describe type def and enumerated data types with example. (06 Marks)
- c. Explain constant and strings in system verilog with example. (06 Marks)

Module-4

- 7 a. Explain Tasks, functions and void function in system verilog. (06 Marks)
- b. How time values are specified in system verilog, describe with example. (06 Marks)
- c. Explain automatic storage and variable initialization with system verilog program example. (08 Marks)

OR

- 8 a. Describe the communication between the test bench and DUT with suitable diagram and system verilog program. (10 Marks)
- b. Explain different types of system verilog assertions with example. (10 Marks)

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Module-5

- 9 a. Explain common randomization problems in brief. (10 Marks)
b. Write any 4 Random Number functions with an example. (04 Marks)
c. Explain Pseudorandom Number Generators (PRNG) in system verilog. (06 Marks)
- OR
- 10 a. What is coverage? Explain coverage types in system verilog. (10 Marks)
b. Describe various coverage options with an example. (10 Marks)

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