

Question Paper

Exam Date & Time: 07-Jan-2019 (10:00 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

SCHOOL OF INFORMATION SCIENCES

FIRST SEMESTER MASTER OF ENGINEERING - ME (VLSI DESIGN) DEGREE
EXAMINATION (MAKE-UP) - JANUARY 2019

Digital Systems and VLSI Design [EDA 613]

Marks: 100

Duration: 180 mins.

MAKEUP EXAM - JAN 2019

Answer all the questions.

- 1) Explain N-well process with neat diagrams. (10)
- 2) Explain the thermal oxidation mechanism. (10)
- 3) Compare positive and negative photoresists. (10)
- 4) What are the different ways of photoresist dispensing? (10)
- 5) With diagrams, compare NELT, NELS and HMOS static load inverters. (10)
- 6) What are the components of dynamic power dissipation? Explain them briefly with the relevant formulae and diagrams. (10)
- 7) Derive an expression for the short-circuit power dissipation component in a CMOS circuit. Devise a method to reduce this component by analyzing each element in this expression. (10)
- 8) What is a structured CMOS design? What are its advantages? Explain the steps in this design with an example. (10)
- 9) Design a fully complimentary single bit full adder using minimum number of transistors. Using this adder, explain how do you construct an adder/subtractor circuit. (10)
- 10) a) What are the various ways of constructing large inverters? Explain with the help of physical layouts. (05)
b) What are tristate inverters? What are their advantages? (05)

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