Reg. No.										

MANIPAL UNIVERSITY
SCHOOL OF INFORMATION SCIENCES

FIRST SEMESTER MASTER OF ENGINEERING - **ME** (VLSI DESIGN)
DEGREE EXAMINATION – APRIL / MAY 2016

SUBJECT: EDA 613 - DIGITAL SYSTEMS & VLSI DESIGN

Tuesday, May 3, 2016

Time: 10.00 – 13.00 Hrs. Max. Marks: 100

1. Explain CZ method of crystal growth with relevant figures. (10 marks)
2. Explain P-well process with neat diagrams. (10 marks)
3. Explain, with a neat diagram, horizontal tube furnace system and its various sections used in thermal oxidation method. (10 marks)
4. What are the different ways of photoresist dispensing? (10 marks)
5. What are the important second order effects in MOSFETs? Explain them briefly. (10 marks)
6. Derive an expression for the switching power dissipation component in a CMOS circuit. Discuss methods to reduce this component by analyzing each element in this expression. (10 marks)
7. Derive a complete low frequency, small signal model for a MOSFET with bulk effect. (10 marks)
8. 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 marks)
9. Design a CMOS circuit for the Boolean expression F = ((A.B + C) D.E)' with equal rise time (t_r) and fall time (t_f). (10 marks)
10. A) What are the various ways of constructing large inverters? Explain with the help of physical layouts.
    B) What are tri-state inverters? What are their advantages? (10 marks)

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