

MEVD - 204**M.E./M.Tech., II Semester**

Examination, June 2014

Microelectronics**Time : Three Hours****Maximum Marks : 70**

Note : i) Attempt any five questions.
 ii) Each question carries equal marks.
 iii) Notations have standard meaning.

1. a) What are the advantages of ICs? List the steps involved in fabricating a monolithic IC.
 b) What do you understand by static load MOS inverter?
2. a) What are the two basic distinctions between a junction and an MOS capacitor.
 b) List six important characteristics of integrated components and six design rules of monolithic circuit layout.
3. a) Compare the relative merits of NMOS, CMOS, TTL and ECL logic families.
 b) Discuss the following:
 - i) NMOS ROM
 - ii) PROMS
 - iii) EPROMS

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4. a) Define a priority encoder. Show the truth table for a 4 to 2 line priority encoder.
 b) Write the truth table for converting from a binary to a gray code.
5. a) Draw the circuit for a single phase dynamic MOS inverter. Explain its operation.
 b) Draw the circuit for one stage of a two phase ratioed dynamic NMOS shift register. Draw the clocking waveforms.
6. a) Show how to obtain the NOR function $\overline{A+B}$ in I^2L .
 b) How does a microcomputer differ from a micro processor.
7. a) List all the low power control circuits which are fabricated on a single IC chip and used with a switching regulator.
 b) Differentiate between VMOS and low power MOSFET with respect to output characteristics.
8. Write short notes on any two of the following:
 - i) Interconnection of VLSI
 - ii) Fault modeling and simulation
 - iii) Scaling of interconnects
 - iv) Cascode voltage switch logic.