

**B. Tech. (ECE) 6th Semester (G Scheme)**  
**Examination, July-2022**

**CMOS DESIGN**

**Paper-PCC-ECE-308-G**

*Time allowed : 3 hours]*

*[Maximum marks : 75*

*Note : Question No. 1 is compulsory. Attempt any one question each from Unit-I to Unit-IV.*

1. (a) What is channel length modulation ?
- (b) Write CMOS design rules.
- (c) Explain any 2 impacts of inter connect modeling.
- (d) Write note on timing matrices of sequential circuits.
- (e) What is gate leakage ? 5×3=15

**Unit-I**

2. Explain working of n-type enhancement type MOSFET with its modes and regions. Draw characteristic curve also. 15
3. Explain R-C delay model. Draw circuit for R-C delay model for inverter and determine propagation delay. 15

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**Unit-II**

4. Explain static CMOS. Explain design techniques to reduce delay in it. 15
5. Explain interconnect modeling for resistance and inductance. 15

**Unit-III**

6. (a) Explain block diagram of finite state machine using positive edge triggered registers. 10
- (b) Give differences between latch and registers. 5
7. (a) Explain Schmitt trigger with its CMOS implementation. 10
- (b) Give basics of synchronous timing design. 5

**Unit-IV**

8. Explain architecture of 512-word content addressable memory. 15
9. What are address decoders ? Explain static decoder design. 15

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