No. of Printed Pages : 03 **Roll No. .....**

AA-762

M. Tech. EXAMINATION, May 2018

(First Semester)

(B. Scheme) (Re-appear Only)

ECE(VLSI)

MTVLSI503

VLSI FOR OPTICAL INTERCONNECTS

Time : 3 *Hours*] [*Maximum Marks :* 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) Discuss properties of Random Binary Data and explain its generation process. **8**

(b) Explain the effect of low pass filtering on random data and periodic data. **7**

2. (a) Explain design and working of distributed feedback laser. **5**

(b) Give model for chromatic dispersion. **5**

(c) Comment on responsibity and efficiency of Avalanche diode. **5**

Unit II

3. (a) Design a CMOS TIA to handle overload response. **10**

(b) What are noise sources in feedback TIA configuration ? **5**

4. (a) What are various performance parameters of limiting amplifier ? **5**

(b) Derive SNR of TIA. **5**

(c) What is significance of AM/PM conversion ? **5**

Unit III

5. (a) Design a ring oscillator using CMOS inverters. **8**

(b) Discuss design of a VCO to equalize rise and fall time. **7**

6. (a) Design CMOS multiplexer in :

(i) tree structure topology

(ii) shift register topology. **10**

(b) What are various metrices used to quantity modulator driver circuit ? **5**

Unit IV

7. (a) How is performance of interconnect measured ? **5**

(b) Differentiate electrical and optical interconnects. **10**

8. (a) Draw :

(i) Delay *vs*. technology node (nm) graph

(ii) Power dissipation *vs*. Technology Node (nm) graph. **10**

(b) How is link efficiency measured ? **5**