Printed pages: 01 **Sub Code: VD201**

Paper Id: 208211 **Roll No:** | | | | | | | | | | |

M TECH

(SEM-II) THEORY EXAMINATION 2017-18

ANALOG VLSI DESIGN

Time: 3 Hours ***Total Marks: 100***

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. **2 x 10 = 20**

a. What is the difference betweenAnalog and Digital VLSI design?
b. What do you mean by Feedback amplifier?
c. What is the concept of Current sink?
d. What do you mean by current source load?
e. Define CMOS Differential amplifier?
f. What are the two component of power dissipation?
g. What happen, when we set bias voltage small positive and as time passes we start increasing the value of positive bias in MOS diode?
h. What is the various limitation of analog VLSI?
i. A certain noninverting amplifier has R_i of 1 kΩ and R_f of 100 kΩ. Find out the closed-loop voltage gain?
j. Define short channel device**.**

SECTION B

2. Attempt any *three* of the following: **10 x 3 = 30**

a. Write a short note on Noise in MOSFET.
b. What are the ideal characteristics of Op-amplifier?
c. Explain about Common gate amplifier with suitable diagram. Also derive the expression for voltage gain, input impedance, output impedance, current gain.
d. What is Operational Tranconductance Amplifier?
e. Define Differential Signaling.

SECTION C

3. Attempt any *one* part of the following: **10 x 1 = 10**

a. What are the recent trends in analog VLSI circuits?
b.Explain temperature effects in MOSFET.

4. Attempt any *one* part of the following: **10 x 1 = 10**

a.Write a note on Properties of negative feedback on amplifiers design.
b. Write a note on Feedback Topologies with suitable diagram and expression.

5. Attempt any *one* part of the following: **10 x 1 = 10**

a.Explain Regenerative comparator with suitable waveforms.
b.Discuss the concept of CMOS differential amplifier with current mirror load.

6. Attempt any *one* part of the following: **10 x 1 = 10**

a.Draw Block diagram of Op-Amplifier and also Explain Frequency response of Op-Amplifier.
b.What do you mean by CMOS Comparator? Explain various characteristics of Comparators.

7. Attempt any *one* part of the following: **10 x 1 = 10**

a. Explain High output current amplifier.
b. Explain Switch Capacitor Integrators.