

Total No. of Questions : 8]

SEAT No. :

P4833

[Total No. of Pages : 2

[5060] - 739

M.E. (E & TC) (VLSI & Embedded Systems)

ANALOG CMOS DESIGN

(2013 Pattern) (Semester - II)

Time : 3 Hours]

[Max. Marks : 50

Instructions to the candidates :-

- 1) Answer any five questions.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Assume Suitable data if necessary.

- Q1)** a) Explain MOSFET as a switch? Comment on signal degradation in pass transistor. [4]
- b) Explain CMOS inverting amplifiers. [3]
- c) What is the need of Voltage/current reference? [3]
- Q2)** a) Explain in detail common source amplifier. [4]
- b) How current sink and current source are implemented using MOSFET. 'What are the voltage compliances? How to improve? [4]
- c) Write short note on MOSFET as a diode. [2]
- Q3)** a) Explain CMOS differential amplifier using NMOS transistors with large signal analysis. [4]
- b) Discuss any two approaches to implementing the output amplifier. [4]
- c) Write short note on Micro power opamp. [2]
- Q4)** a) Explain large signal analysis of differential amplifier. [4]
- b) Explain Low noise opamp using MOSFETS. [4]
- c) Write short note on cascode amplifier. [2]

P.T.O.

- Q5)** a) Explain short circuit time constant method for bandwidth estimation.[4]  
b) Explain current scaling Digital to Analog Convertor. [4]  
c) Explain Neutralization and unilateralization approaches of Tuned amplifier. [2]
- Q6)** a) Explain Shunt peaked amplifier for bandwidth enhancement. [4]  
b) Explain different switched capacitor circuits that emulate a resistor.[4]  
c) Explain Two Port bandwidth enhancement technique. [2]
- Q7)** a) Discuss various LNA topologies with respect to power versus noise match. [5]  
b) What is Differential LNA , how it overcomes the drawbacks in single ended LNA [5]
- Q8)** a) Explore different characteristics of mixer. [4]  
b) Explain advanced trends in RF chip design. [6]

