Total No. of Questions :8]

SEAT No. :

P3057

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[4660]-1197

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

ANALOG CMOS DESIGN

(2013 Credit Pattern) (Semester - II) (504207)

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 in detail MOS as a active diode and resistor. **[4]**

b) Write short note on CMOS inverter as an amplifier. **[3]**

c) Draw and explain single MOSFET current sink. **[3]**

Q2) a) Draw cascade current sink. What are the techniques to improve vmin. **[4]**

b) Justify the necessity of band gap reference. Give the schematic and principle of BGR & conventional BGR. Give the necessary expression. **[3]**

c) Explain in detail common source amplifier. **[3]**

Q3) a) Draw and explain CMOS OPAMP. **[5]**

b) Explain the concept of low noise OPAMP. **[3]**

c) Explain in brief the output amplifier of CMOS OPAMP. **[2]**

Q4) a) Write short note on micro power OPAMP. **[5]**

b) Write short note on weak inversion, MOS small signal models & short channel regine. **[3]**

c) Draw and explain differential amplifier. **[2]**

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Q5) a) Explain in detail switched capacitor. **[4]**

b) Write short note on trends in RF chip design. **[4]**

c) What are the techniques to improve the bandwidth. **[2]**

Q6) a) Explain the concept of Zero as bandwidth enhancers. **[4]**

b) Explain in detail open circuit and short circuit method. **[4]**

c) Write short note on Tuned amplifier. **[2]**

Q7) a) Explain the concept of power constrained noise optimization. **[5]**

b) Derive the expression for intrinsic MOSFET of two port noise parameter. **[5]**

Q8) a) Explain in detail Low noise amplifier. **[5]**

b) Explain in detail the LNA topologies. **[5]**

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