

PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
M.Tech. Winter 2017 - 18 Examination

Semester:1
Subject Code: 03212102
Subject Name: CMOS Circuit Design 1

Date: 26/12/2017
Time: 02:00pm to 04:30pm
Total Marks: 60

Instructions:

1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

- Q.1** A) Why analog circuit is fundamental necessity in recent era ? (05)
B) Define: Regularity, Modularity, Locality (05)
C) Explain the simplified view of VLSI design flow in detail. (05)

Q.2 Answer the following questions. (Attempt any three) (Each five mark) (15)

- A) Explain the basics of current mirrors with necessary circuit diagrams.
B) Define high frequency response and explain it in detail using open circuit time constant method.
C) Explain the gradual channel approximation for the MOSFET V-I characteristics.
D) Explain the MOSFET scaling.

- Q.3** A) Explain in detail: Gilbert cell (07)
B) Explain in brief: single ended and differential operations. (08)

OR

- B) Explain the qualitative analysis in detail for the basic differential pair. (08)

- Q.4** A) Explain in detail for small signal and large signal for common source single stage amplifier with resistive load. (07)

OR

- A) Fabrication process steps for nMOS transistor. (07)
B) Explain the miller's theorem in detail. (08)