

7. Write shortly on
- i) Transconductance
- ii) Channel length modulation $5+5=10$
8. What is opamp? Explain briefly about compensation of opamp. $3+7=10$

B. Tech Odd Semester Examination, February, 2023

Electronics & Communication Engineering (7th Semester)

Course No.: EC-CC-25
(Analog VLSI Design)

Full Marks: 50

Pass Marks: 15

Time: 2 hours

- Note:**
1. Attempt any five questions.
 2. Begin each answer in a new page.
 3. Answer parts of a question at a place.
 4. Assume reasonable data wherever required.
 5. The figures in the right margin indicate full marks for the question.
 6. All the mathematical symbols and abbreviations have their usual meanings.
1. Draw the structure of a MOSFET and explain the operating principle. $2+8=10$
 2. What are the short channel effects? Discuss them in brief. 10
 3. Derive the expression for voltage gain of common source and common drain amplifiers. $5+5=10$
 4. What is a differential amplifier? What are ICMR, SR, CMRR and PSRR $2+8=10$
 5. What is a cascode current mirror? Derive the expression for aspect ratio cascode current mirror. $3+7=10$
 6. Draw the different MOS voltage reference circuits and explain their working principle. 10