Register No.: ..... Name: .....

SAINTGITS COLLEGE OF ENGINEERING (AUTONOMOUS)

(AFFILIATED TO APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY, THIRUVANANTHAPURAM)

SECOND SEMESTER M.TECH DEGREE EXAMINATION (Regular), MAY 2023

VLSI AND EMBEDDED SYSTEMS

(2021 Scheme)

Course Code: 21VE201

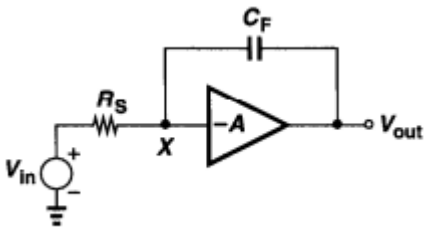
Course Name: Analog Integrated Circuits

Max. Marks: 60 **Duration: 3 Hours**

PART A

(Answer all questions. Each question carries 3 marks)

1. Compare cascode amplifier and folded cascode amplifier.
2. What is the significance of sensitivity analysis of current mirror circuit?
3. Explain the needs of standard reference circuit in analog circuits design.
4. State and prove Millers theorem.
5. Derive the equation of pole associated with the node X in the following figure.



6. Explain the working of source coupled differential amplifier.
7. What is power spectral density?
8. Prove that how negative feedback improves gain stability.

PART B

(Answer one full question from each module, each question carries 6 marks)

MODULE I

9. Analyze source follower amplifier using small signal model. (6)

OR

10. Analyze common gate amplifier circuit using small signal model. (6)

MODULE II

11. Explain the working of cascode current mirror. (6)

OR

12. Explain the working of Wilson current mirror. What are the advantages of Wilson current mirror? (6)

13. Describe the working of supply independent biasing. (6)

OR

14. Illustrate the working of PTAT current generation topology. (6)

MODULE IV

15. Explain the working of MOS differential amplifier with source follower as output stage. (6)

OR

16. Derive the CMRR of MOS differential amplifier. (6)

MODULE V

17. Perform high frequency analysis of common source amplifier. (6)

OR

18. Perform high frequency analysis of common gate amplifier. (6)

MODULE VI

19. Describe the statistical characteristics of noise. (6)

OR

20. Explain how terminal impedance and bandwidth are modified by the application of feedback. (6)

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