G 535

Reg. No..

Name..

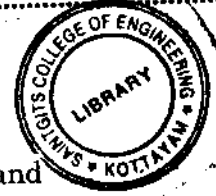# B.TECH. DEGREE EXAMINATION, MAY 2014

Fourth Semester

Branch : Applied Electronics and Instrumentation/Electronics and Communication Engineering

AI 010 406/EC 010 406—ANALOG CIRCUITS—II (AI, EC)

(New Scheme—2010 Admission Onwards)

[Regular/Improvement/Supplementary]

Time : Three Hours

Maximum : 100 Marks

Part A

Answer all questions.
Each question carries 3 marks.

1. Define and explain CMRR. What is its significance ?

2. Draw the internal circuit of 741 OP-Amp and explain it in detail.

3. Draw OP-Amp Buffer. Explain its applications. Obtain its voltage gain.

4. What is a Notch filter ? Explain its characteristics.

5. Differentiate ADC from DAC. Explain the difference.

(5 × 3 = 15 marks)

Part B

Answer all questions.
Each question carries 5 marks.

6. Explain the need for current mirror circuits with neat diagrams.

7. Define and explain : 1. Slew Rate ; 2. SVRR.

8. Draw an OP-Amp instrumentation amplifier and explain.

9. Explain the characteristics of All pass filters.

10. Explain the working principle of flash ADC with a neat diagram.
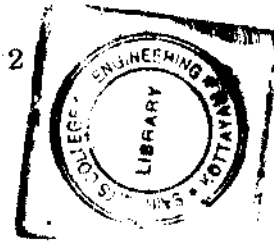
(5 × 5 = 25 marks)

Part C

Answer all questions.
Each question carries 12 marks.

11. Discuss the characteristics of an ideal OP-Amp, in detail.

Or

Turn over

12. Explain in detail the following :—

    1 Multistage differential amplifier ;

    2 MOS differential amplifier.

13. (i) Draw a 2 stage OP-Amp circuit and explain it in detail.

    (ii) Derive an expression for Bandwidth of an OP-Amp.

Or

14. Discuss in detail the frequency compensation and slew rate in 2 stage OP-Amp with neat diagrams.

15. Explain the applications of OP-Amp in detail. Derive the expressions for voltage for non-inverting amplifier and summer.

Or

16. Draw an OP-Amp RC Phase shift oscillator circuit. Explain its working principle in detail. Derive the condition for oscillation.

17. Bring out the design details of first order high pass filler, with an example.

Or

18. Give an account on : 1 Switched capacitor integrator ; 2 First order SC filter.

19. Draw a dual slope ADC circuit. Explain its principle of operation and applications in detail.

Or

20. Write technical notes on ;

    1 Building blocks of PLL ;

    2 VCO ;

    3 Monostable multivibrator using 555 IC.

$(5 \times 12 = 60 \text{ marks})$