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Question Paper Code : 10322

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2012.

Fourth Semester

Electrical and Electronics Engineering

EE 2254/131404/EE 45/EC 1260/10133 EE 405/080280028 – LINEAR INTEGRATED CIRCUITS AND APPLICATIONS

(Common to Instrumentation & Control Engineering and Electronics & Instrumentation Engineering)

(Regulation 2008)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — ($10 \times 2 = 20$ marks)

1. What is the significance of using burried layer?

2. What are the advantages of polysilicon gate MOSFET over aluminium gate?

3. List any four non ideal dc characteristics of opamp.

4. Draw a subtractor using op–amp.

5. Draw the circuit of I to V converter using op–amp.

6. Define Monotonicity with respect to Data converters.

7. In what way VCO is different from other oscillators.

8. Mention any two applications of 555 Timer in Monostable mode.

9. Why do switching regulators have better efficiency then the series regualtors?

10. What is an optocoupler?

PART B — (5 × 16 = 80 marks)

11. (a) Explain in detail the fabrication process of passive component in Integrated Circuits.

Or

(b) With necessary diagrams explain the fabrication of MOSFET.

12. (a) Draw the circuit of a symmetrical emitter coupled differential amplifier and derive for CMRR.

Or

(b) Show with the help of circuit diagram an op–amp used as

(i) Summer (8)

(ii) Integrator and explain their operation. (8)

13. (a) Explain the working principle of RC phase shift sine wave generator using op–amp and derive the expression for 'f'.

Or

(b) (i) With an example and diagrams explain the working principle of Successive approximation type ADC. (12)

(ii) Explain the important DAC specifications. (4)

14. (a) Design and draw the waveforms of a 1KHZ Square waveform generator using 555 Timer for duty cycle.

(i) D = 25%

(ii) D = 50%

Or

(b) (i) Perform the closed loop analysis of PLL. (8)

(ii) Explain any two application of PLL. (8)

15. (a) Draw and explain the functional block diagram of a 723 voltage regulator and how this IC can be used as High voltage regulator.

Or

(b) Write an explanatory note on :

(i) Power amplifier

(ii) Isolation amplifiers.

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