24/11/2017 FN

Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 50475

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2017

Third Semester

Electrical and Electronics Engineering

EE 6303 – LINEAR INTEGRATED CIRCUITS AND APPLICATIONS

(Common to : Electronics and Instrumentation Engineering/Instrumentation and Control Engineering)

(Regulations 2013)

Time : Three Hours | Maximum : 100 Marks

Answer ALL questions

PART – A **(10×2=20 Marks)**

1. State the limitations of IC technology.
2. Distinguish between dry etching and wet etching.
3. A 100 pF capacitor has maximum charging current of 100 microampere. Calculate its slew rate.
4. What is the drawback of IC 741 ?
5. What is the use of sample and hold circuit ?
6. Write any two applications of clipper and clamper.
7. Define PULL time of PLL.
8. Where is the analog multiplier circuit used ?
9. What is an isolation amplifier ?
10. List the characteristics of opto coupler.

PART – B **(5×13=65 Marks)**

11. a) Explain the basic process used in silicon planar technology with neat diagram. **(13)**

(OR)

b) Write a note on classification of IC and IC packages. **(13)**

12. a) Explain the following terms in an OP-AMP :
    i) Bias current (3)
    ii) Thermal drift (3)
    iii) Input offset voltage and current (4)
    iv) Virtual ground. (3)

(OR)

b) Draw the circuit of a symmetrical emitter coupled differential amplifier and derive for CMRR. (13)

13. a) With neat diagram, explain the working principle of
    i) R-2R ladder type DAC (7)
    ii) Weighted resistor DAC (6)

(OR)

b) Draw and explain the circuit of a second order Butterworth low pass filter and derive its transfer function. (13)

14. a) i) Briefly explain the difference between the two operating modes of 555 Timer. (7)
    ii) List the important feature of 555 Timer. (6)

(OR)

b) Write a note on :
    i) Analog multipliers ii) VCO. (8+5)

15. a) Briefly explain the working principle of switch mode power supply with necessary circuit diagrams and waveforms. (13)

(OR)

b) Write short notes on :
    i) LM 380 Power Audio Amplifier (6)
    ii) ICL 8038 Function generator IC. (7)

PART – C (1×15=15 Marks)

16. a) What are the new trends in integrated circuit technologies and explain about its scope for future generation.

(OR)

b) Explain in detail the recent fabrication methods of diode and capacitance for industrial applications.
