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

Question Paper Code : 91482

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2019

Third Semester

Electrical and Electronics Engineering

EE 6303 – LINEAR INTEGRATED CIRCUITS AND APPLICATIONS

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

(Regulations 2013)

Time : Three Hours | Maximum : 100 Marks

Answer ALL questions

PART – A **(10×2=20 Marks)**

1. Classify ICs on the basis of application, device used and chip complexity.
2. Mention different available IC package configurations.
3. What is meant by input offset current and offset voltage ?
4. Define CMRR.
5. What is sample and hold circuit ? Where it is used ?
6. What is the advantage of using active clipper over passive clipper ?
7. What is an analog multiplier ? Name its applications.
8. Draw the circuit diagram of a PLL circuit used as an AM modulator.
9. What is SMPS ?
10. What are the applications of fixed voltage regulator ?

PART – B (5×13=65 Marks)

11. a) i) Describe the Epitaxial growth process. (7)

ii) Explain the different types of IC packages. (6)

(OR)

b) Briefly explain the various process involved in fabrication monolithic IC which integrates diode, capacitance and FET.

12. a) Discuss the frequency response characteristics and compensation of an operational amplifier.

(OR)

b) i) Explain the application of Op-Amp as differentiator. (7)

ii) Find V_0 for the given circuit shown in Figure (1). (6)

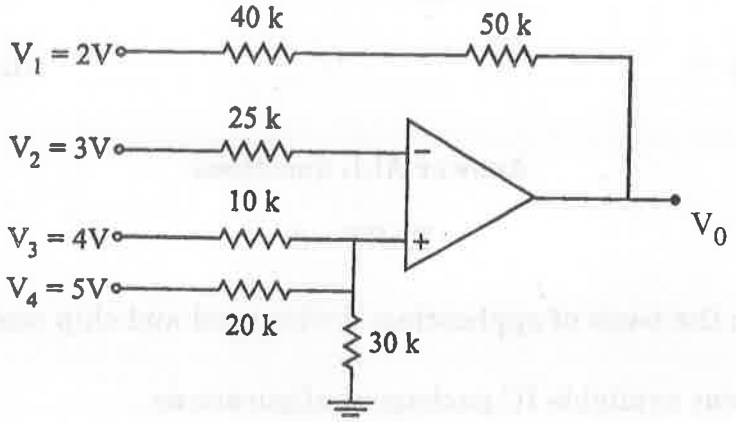

Figure (1)

13. a) i) Design a second order Butterworth Low pass filter having upper cut-off frequency of 1 KHz. (7)

ii) Explain how to measure the phase difference between two signals. (6)

(OR)

b) i) Draw a sample and hold circuit and explain its operation. (6)

ii) Design a circuit of a clipper which will clip the input signal below a reference voltage. (7)

14. a) Briefly explain the functional block diagram of NE 565 PLL-IC to operate as a frequency divider.

(OR)

b) i) Explain the functional block diagram of 555 timer IC. (6)

ii) Design a monostable multivibrator with pulse duration of 1m sec using 555 timer IC. (7)

15. a) What do you mean by the fixed voltage and variable voltage regulator ? List its various applications.

(OR)

b) Write short notes on :

i) LM380 Power Audio Amplifier. (7)

ii) ICL 8038 Function Generator. (6)

PART – C (1×15=15 Marks)

16. a) Develop an op-amp based circuits to perform following mathematical operations :

i) Integration (5)

ii) Logarithmic (5)

iii) Multiplication. (5)

(OR)

b) Develop an op-amp based instrumentation amplifier for industrial applications.