Hall Ticket Number:

Code No. : 31204

VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD

B.E. (E.E.E.) III Year I-Semester (Main) Examinations, Nov./Dec.-2016

Linear Integrated Circuits

Time: 3 hours Max. Marks: 70

*Note: Answer **ALL** questions in **Part-A** and any **FIVE** from **Part-B***

Part-A (10 × 2 = 20 Marks)

1. Describe the equivalent circuit of ideal op-amp.
2. Define slew rate and input offset voltage.
3. Write the condition for good differentiation.
4. What is a comparator? Write the application of comparator.
5. What are the three stages through which PLL operates?
6. Draw the Pin diagram of IC 555.
7. Define ripple rejection with respect to voltage regulators.
8. What is function voltage regulator?
9. Define band pass filter.
10. Why active filters are preferred?

Part-B (5 × 10 = 50 Marks)
(All bits carry equal marks)

11. a) Explain how an op - amp can be used as summing amplifier.
    b) Derive the equation for frequency at which the gain is 0 dB for an Op-amp based integrator.
12. a) Construct a half wave rectifier using op-amps and explain the operation using relevant waveforms.
    b) List out the advantages of instrumentation amplifier.
13. a) What are the different applications of IC555 timer in astable mode? Explain any one application with circuit diagram and waveforms.
    b) Draw the circuit of PLL as frequency multiplier and explain its working.
14. a) Explain the operation of current limiting protective circuit using an OP-AMP with neat sketches.
    b) Explain the operation of current foldback protective circuit in regulators with neat sketches.
15. a) What is an all pass filter? Show that the magnitude response of the all pass filter is 1.
    b) Design a first order low-pass Butterworth filter with a cutoff frequency of 3 kHz and passband gain of 3.
16. a) Explain any one method to improve CMRR.
    b) Explain the operation of peak detector and sample & hold circuit.
17. Write short notes on any *two* of the following:
    a) Dual slope type A/D converters.
    b) Switching regulator.
    c) Principle of Modulation and demodulation.

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