Hall Ticket Number:

Code No.: 31204 S

VASAVI COLLEGE OF ENGINEERING *(Autonomous)*, HYDERABAD

B.E. (E.E.E.) III Year I-Semester Supplementary Examinations, May/June-2017

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. Give some of liner applications of OP-AMP.
2. Define voltage follower of an OP-AMP.
3. Define zero crossing detector of an OP-AMP.
4. List out the basic requirements of a good instrumentation amplifier.
5. What is meant by resolution of an ADC?
6. Examine the fastest type of ADC and why?
7. List out the various protection circuits used for voltage regulators.
8. Why do switching regulators have better efficiency than the series regulator?
9. What is meant by cut off frequency of a high pass filter and how it is found out in a first order high pass filter?
10. What is the purpose of having a low pass filter in PLL?

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

11. a) Describe the ideal characteristics of an OP-AMP.
    b) Why it is desirable for an OP-AMP to have a high CMRR?
12. a) Distinguish between astable, bistable and monostable multivibrators.
    b) Draw the circuit diagram of Schmitt trigger using OP-AMP and explain its operation with relevant waveforms.
13. a) Design and explain triangular wave generator using Schmitt trigger and integrator circuit.
    b) With circuit diagram and wave forms explain monostable operation of IC555 timer. Derive an equation for time delay for this circuit.
14. a) Describe the operation of switching voltage regulator using an OP-AMP in detail with neat sketches.
    b) Explain the operation of Buck regulator using an OP-AMP with neat sketches.
15. a) Explain the operation of first order high pass butter worth filter.
    b) Design a first order high pass filter at cutoff frequency of 500Hz. And passband gain of 1.
16. a) Describe the operation of V-I converter circuits using an OP-AMP.
    b) Discuss the application of OP-AMP as astable multivibrator.
17. Answer any ***two*** of the following:
    a) Any one application of PLL.
    b) State why the phase detector output in a PLL should be followed by a low pass filter.
    c) Working of Switched capacitor filter.