Code :R7311305

R7

III B.Tech I Semester(R07) Supplementary Examinations, May 2011
LINEAR & DIGITAL IC APPLICATIONS
(Common to Electronics & Control Engineering, Electronics & Computer Engineering)

Time: 3 hours **Max Marks: 80**

Answer any FIVE questions
All questions carry equal marks

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1. (a) What is meant by operational amplifier ? Draw and explain its block diagram.
   (b) What are the modes of operation of an operational amplifier ? Analyze any one of that mode.
2. (a) Draw the circuit diagram of Differentiator using op-amp and explain its operation with relevant wave forms.
   (b) Draw the circuit diagram of Schmitt trigger using op-amp and explain its operation with relevant waveforms.
3. (a) Design Wien bridge oscillator using op-amp and derive the necessary expression.
   (b) Write notes on all pass filters.
4. (a) With the aid of functional schematic diagram of 555 timer, explain how it can be used as astable multivibrator.
   (b) Draw the block diagram of IC565 and explain its operation.
5. (a) Draw and explain the circuit diagram of parallel comparator type ADC.
   (b) Draw and explain the circuit operation of an inverted R-2R DAC.
6. (a) Give the classification of integrated circuits and compare the various logic families.
   (b) Explain the concept of CMOS transmission gate.
7. (a) Give the design considerations of parity encoder and explain the operation with relevant circuit.
   (b) Design a parallel binary subtractor circuit using 2's complement system.
8. (a) What are the commonly available CMOS 40XX series of IC counters and explain any one of them.
   (b) Discuss about synchronous DRAMs.

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