Code No: OR320452 **OR**

III B.Tech II Semester Supplementary Examinations, April/May 2005
LINEAR DIGITAL I.C. APPLICATIONS
(Common to Electronics & Communication Engineering, Electronics & Instrumentation Engineering, Bio-Medical Engineering, Electronics & Control Engineering and Mechatronics)

Time: 3 hours **Max Marks: 70**

Answer any FIVE Questions
All Questions carry equal marks

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1. (a) Derive the expression for CMRR for the first stage differential amplifier
   (b) Explain about any two linear and nonlinear applications of OP-AMP
2. (a) Draw the circuit diagram of a two input non inverting type summing amplier and derive the expression for output voltage.
   (b) Briefly explain why negative feedback is desirable in amplifier applications
   (c) How does negative feedback affect the performance of an inverting amplifier?
3. (a) Explain the function of a typical adjustable voltage regulator. How can you increase the current driving capacity of the regulator?
   (b) Describe the principle of working of a balanced modulator using OP-AMP. Also give the applications of it.
4. (a) Explain the operation of Monostable multivibrator using 555 timer. Derive the expression of time delay of a Monostable multivibrator using 555 timer.
   (b) Design a Monostable multivibrator using 555 timer to produce a pulse width of 100 m sec.
5. Explain block schematic of PLL. List the application of PLL.
6. (a) What are the advantages of active filters over passive ones?
   (b) Design a second order low pass Butterworth filter for a cut off frequency of $2kHz$. Assume necessary data.
   (c) What is an all pass filter? Draw the circuit of the filters.
7. (a) Compare different logic families and mention their advantages and disadvantages?
   (b) Which is the fastest non-saturated logic gate ? Draw the circuit and explain its functions.
8. (a) List out and compare different types of A/D converters.
   (b) Give the schematic circuit diagram of the fastest A/D converter and explain its operation.

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