Write short notes on the following :

i) PLL

ii) Fixed and adjustable voltage regulator

iii) Frequency shift keying

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Roll No .....

EC/EI/IC-404 (New)

B.E. IV Semester

Examination, December 2016

Linear Integrated Circuits and Its Applications

Time : Three Hours

Maximum Marks : 70

Note: i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.

ii) All parts of each question are to be attempted at one place.

iii) All questions carry equal marks, out of which part A and B (Max.50 words) carry 2 marks, part C (Max.100 words) carry 3 marks, part D (Max.400 words) carry 7 marks.

iv) Except numericals, Derivation, Design and Drawing etc.

Unit - I

1. a) Draw the block diagram of an Op-Amp and explain it.

   b) Write down the various types and applications of Op-Amp.

   c) Draw the virtual ground of Op-Amp and write down the characteristics of an ideal Op-Amp.

   d) Draw and discuss the inverting and non inverting Op-Amp configurations.

   OR

   Draw the equivalent circuit of an Op-Amp and write down the expressions for input resistance, voltage gain, collector current and output voltage.

Unit - II

2. a) Discuss input offset voltage, Input offset current of an Op-Amp.

   b) Discuss input bias current, differential input resistance and input voltage range of Op-Amp.

   c) Discuss common mode rejection ratio and large signal voltage gain of Op-Amp.

   d) Write short notes on the following :

      i) Slew rate

      ii) Op-Amp open loop configurations

      iii) Voltage transfer curve of Op-Amp

OR

Write short notes on the following :

i) PSRR and gain bandwidth product

ii) Interpretation of TL082 data sheet

Unit - III

3. a) Discuss the characteristics of positive and negative feedback circuits.

   b) Draw the block diagram of current to voltage converter and show that it is a special case of an inverting amplifier.

   c) Draw the circuit of a summing amplifier and integrators and explain it.

   d) Calculate the voltage gain the input resistance, the output resistance and the bandwidth for a differential amplifier configuration.

OR

Write short notes on the following :

i) Wien bridge oscillator

ii) Voltage series and voltage shunt feedback amplifier

Unit - IV

4. a) Give the classification and characteristics of filters.

   b) Discuss low pass filters giving suitable diagram.

   c) Write a short note on notch filter.

   d) Discuss Chebyshev filter and its characteristics giving suitable expressions.

OR

Write short notes on the following :

i) Butterworth 1st order high pass filter

ii) All pass filter and self tuned filters

Unit - V

5. a) Write short notes on comparator.

   b) Clipper and clamper circuits.

   c) Discuss zero crossing detector giving suitable diagram.

   d) Draw and discuss monostable multivibrator giving suitable expressions and wave forms.

OR