R09

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD
B. Tech III Year I Semester Examinations, November/December-2013
IC APPLICATIONS
(Common to EEE, ECE, ETM)

Time: 3 hours   Max. Marks: 75

Answer any five questions
All questions carry equal marks

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1.a) List and compare ideal and practical characteristics of an Op-Amp.
  b) What are the differences between the inverting and non-inverting terminals of Op-Amp? What do you mean by the term virtual ground?   [7+8]

2.a) Explain the working of an ideal active differentiator.
  b) Draw and explain the operation of an op-amp as an integrator.   [7+8]

3.a) Draw the circuit of RC phase-shift oscillator using op-amp. Derive expression for its frequency of oscillations?
  b) Design a wide band pass filter with f_L=200Hz, f_H=1kHz, and a pass band gain=4 using Op-Amps.   [8+7]

4.a) Explain the operation of 555 timer based Monostable multivibrator with functional diagram?
  b) Define
      i) Lock-in range
      ii) Capture range
      iii) Pull-in time.   [9+6]

5.a) Explain the operation of weighted resistor DAC with neat circuit diagram
  b) List out different types of A/D converters.   [10+5]

6.a) Sketch CMOS NAND gate and explain its working.
  b) What is meant by Tri-static logic? Draw the circuit of Tri-state TTL logic and explain its functions.   [7+8]

7.a) Explain how to use multiplexer as a logic function generator
  b) Explain 4-bit parallel binary subtractor circuit using 2's Complement system.
                                                                             [7+8]

8.a) Using the method of flip-flop conversion carry out the following conversions.
      i) S-R to T
      ii) J-K to D
  b) Describe the operation of an asynchronous decade counter   [8+7]

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