R07

Code: R7220203

B.Tech II Year II Semester (R07) Supplementary Examinations December/January 2015/2016
LINEAR & DIGITAL IC APPLICATIONS
(Electrical & Electronics Engineering)
(For 2008 Regular admitted batch only)

Time: 3 hours   Max. Marks: 80

Answer any FIVE questions
All questions carry equal marks

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1 (a) Define the following electrical parameters: input offset voltage, input resistance, CMRR, output voltage swing and slew rate.
   (b) Draw the circuit diagram of an op-amp differentiator and derive an expression for the output in terms.

2 (a) Discuss the basic requirements of an instrumentation amplifier.
   (b) Discuss the working on instrumentation amplifier.

3 (a) Define a filter. How filters are classified? Explain in detail.
   (b) With a neat circuit diagram, explain the operation of voltage controlled oscilloscope. Give two applications of VCO.

4 (a) What are the two basic modes in which the 555 timer operates?
   (b) Explain the important features of 555 timers.

5 (a) Using an op-amp, draw the functional diagram of successive approximation ADC and explain its operation.
   (b) An 8 bit successive approximations ADC is driven by a 1 MHz clock and then find the conversion time.

6 (a) Explain the following terms with reference to TTL gates:
        (i) Logic levels.
        (ii) D.C noise margin.
        (iii) Low state unit load.
        (iv) High state fan-out.
   (b) Draw and explain the 2 input TTL NOR gate.

7 (a) Draw the circuit for 3 to 8 decoder and explain its function.
   (b) Write a VHDL program for a full adder using two half adders.

8 (a) What do you mean by sequential circuit? Explain with help of a diagram.
   (b) Design a conversion circuit to convert JK flip-flop into T flip-flop.

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