R07

Code: R7311305

B.Tech III Year I Semester (R07) Supplementary Examinations, May 2013

LINEAR & DIGITAL IC APPLICATIONS

(Common to E.Con.E & ECC)

Time: 3 hours Max. Marks: 80

Answer any FIVE questions

All questions carry equal marks

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1 (a) Draw and explain the equivalent circuit of an operational amplifier. Give its features.
(b) What are the DC and AC characteristics of an operational amplifier? Explain any one of them in each category.

2 (a) Draw the circuit diagram of an instrumentation amplifier using op-amp with its operation and derive the necessary expression.
(b) With neat circuit diagram explain the working principle of IC 723 voltage regulator.

3 (a) Design and draw the triangular waveform generator using op-amp and explain its operation.
(b) Write notes on VCO.

4 (a) With the help of schematic diagram of 555 timer, explain how it can be used as monostable multivibrator.
(b) Draw the block schematic of PLL and explain the operation of each block.

5 (a) Draw and explain the circuit diagram of dual slope ADC.
(b) Draw and explain the internal architecture of IC 1408 DAC.

6 (a) Perform the analysis of standard TTL NAND gate and give its characteristics.
(b) With suitable example, explain how CMOS logic driving by TTL logic.

7 (a) Give the design considerations of 2×4 decoder and explain the operation with relevant circuit.
(b) Design a parallel binary adder circuit using 2's complement system.

8 (a) Design and draw the circuit diagram of decade counter and explain its operation.
(b) Differentiate the architectures of ROM and RAM and give their applications.

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