

R16

Code No: 135AY

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B.Tech III Year I Semester Examinations, October - 2020

LINEAR AND DIGITAL IC APPLICATIONS

(Common to ECE, EIE, ETM)

Time: 2 hours

Max. Marks: 75

**Answer any five questions
All questions carry equal marks**

- 1.a) Draw the basic circuit diagram of an Op-amp differentiator and explain its operation and stability. [9+6]
b) What is voltage reference? Why it is needed?
- 2.a) Draw the circuit diagram of an logarithmic amplifier using op-amps and explain its operation. [9+6]
b) Discuss the limitations of linear voltage regulators.
- 3.a) Define an all-pass filter. How can it be justifiably called as phase shift circuit? [8+7]
b) Explain the operation of Square Wave Generation.
- 4.a) Draw the block diagram of 565 PLL and explain about each block. Make circuit connections to track the input signal and explain its operation. [8+7]
b) Draw the circuit of Schmitt trigger using 555 timers and explain its operation.
- 5.a) Explain Four bit binary input D/A converter with a neat circuit. [8+7]
b) Explain working of R/2R D/A converter with a neat circuit.
- 6.a) Explain Successive Approximation ADC with its block diagram. [8+7]
b) Write about Basic DAC techniques.
- 7.a) Find the logic output of a TTL NAND gate that has all its inputs unconnected. [8+7]
b) Design a full subtractor with NAND gates.
- 8.a) Design a 4-bit binary synchronous counter using 74x74. [8+7]
b) Explain the S-R and J-K flip flops with truth table.

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