



- m) Schmitt trigger uses  
(a) positive feedback (b) negative feedback (c) compensating capacitors (d) pull up resistors
- n) Differential amplifiers are used in  
(a) instrumentation amplifiers (b) voltage followers (c) voltage regulators (d) buffers

**Attempt any four questions from Q-2 to Q-8**

- Q-2 Attempt all questions (14)**
- (a) Draw & explain Current Mirror Circuit. (07)
  - (b) What is Op-Amp? Draw and explain the block diagram representation of a typical Op-amp. (07)
- Q-3 Attempt all questions (14)**
- (a) Draw and explain the Block Diagram of IC 555 Timer. (07)
  - (b) Explain the Block Diagram and operation of PLL. (07)
- Q-4 Attempt all questions (14)**
- (a) Define: 1) Input Bias Current 2) CMRR 3) Slew rate 4) Input offset current 5) Input offset voltage (05)
  - (b) Explain the Block Diagram of Voltage Controlled Oscillator(566/VCO) (05)
  - (c) Explain the frequency shift keying circuit using PLL. (04)
- Q-5 Attempt all questions (14)**
- (a) Explain the Practical Integrator circuit. Explain its advantages. (07)
  - (b) Draw and explain Differential input Differential output amplifier. (07)
- Q-6 Attempt all questions (14)**
- (a) Design a practical integrator circuit with a d.c gain of 10, to integrate a square wave of 10 KHz. (07)
  - (b) Explain Basic Inverting Schmitt trigger circuit with input & output waveforms. (07)
- Q-7 Attempt all questions (14)**
- (a) Compare Butterworth filter & Chebychev Filters. (07)
  - (b) Explain the working of Inverting summing amplifier. (07)
- Q-8 Attempt all questions (14)**
- (a) Explain Wein Bridge oscillator. (05)
  - (b) Explain Voltage to Current converter with any one application. (05)
  - (c) Design a differentiator to differentiate an input signal that varies in frequency from 10 Hz to about 500Hz. If a sine wave of 2V Peak at 500Hz is applied to the differentiator, write expression for its output and draw output waveform. (04)

