



SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

Coimbatore-35

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

16EE203 – LINEAR AND DIGITAL CIRCUITS

UNIT II –Applications of operational amplifiers and Timer Circuits

2 MARKS

- 1. What is the function of a voltage regulator? Name few IC voltage regulators.**

A voltage regulator generates a fixed output voltage of a preset magnitude that remains constant regardless of changes to its input voltage or load conditions.

EX: IC 78XX,79XX,IC723

- 2. What is the purpose of having input and output capacitors in three terminal IC voltage regulator?**

The input capacitor is used to prevent unwanted oscillations and the output capacitor acts as a line filter to improve transient response.

- 3. Why the analog to digital conversion is needed?**

Most of the real world signals (e.g. a song or speech) are analog in nature. However, if we want to transmit them all over the world to multiple people at once, or if we want to enhance its quality by removing background noise, we will need to convert them into digital form.

- 4. List the broad classification of ADCs.**

1. Direct type ADC. 2. Integrating type ADC.

- 5. List out the direct type ADCs.**

1. Flash (comparator) type converter
2. Counter type converter
3. Tracking or servo converter
4. Successive approximation type converter

- 6. List the demerits of weighted resistor Digital to Analog converters.**

Usage wide range of resistors is the limitation of binary weighted resistor type DAC, this can be avoided by using R-2R ladder type DAC Where only two value of resistor are required.



7. What is integrating type converter?

An ADC converter that perform conversion in an indirect manner by first changing the analog I/P signal to a linear function of time or frequency and then to a digital code is known as integrating type A/D converter.

8. What are the main advantages of integrating type ADCs?

- i. The integrating type of ADC's do not need a sample/Hold circuit at the input.
- ii. It is possible to transmit frequency even in noisy environment or in an isolated form.

9. How many resistors are required in a 12-bit weighted resistor DAC?

For 12 bit DAC the resistor required are $20R, 21R, 22R, \dots, 2nR$. The largest resistor is 2048

times the smallest one for only 12bit DAC.

13 resistors are required.

12 Connected with switches

1 is connected as feedback resistor.