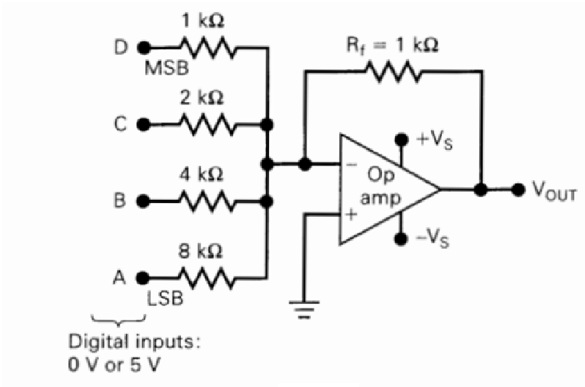
CSE-3105 (Microprocessors and Micro-controller)

Date: 23 July 2020

Topics of Lecture 30, Lecturer 31 and Lecture 32:

Q1. Explain the circuitry of Digital to Analog Converter with proper example and circuit diagram. Also show the calculation of the analog output voltage for each combination of input.

Q2.



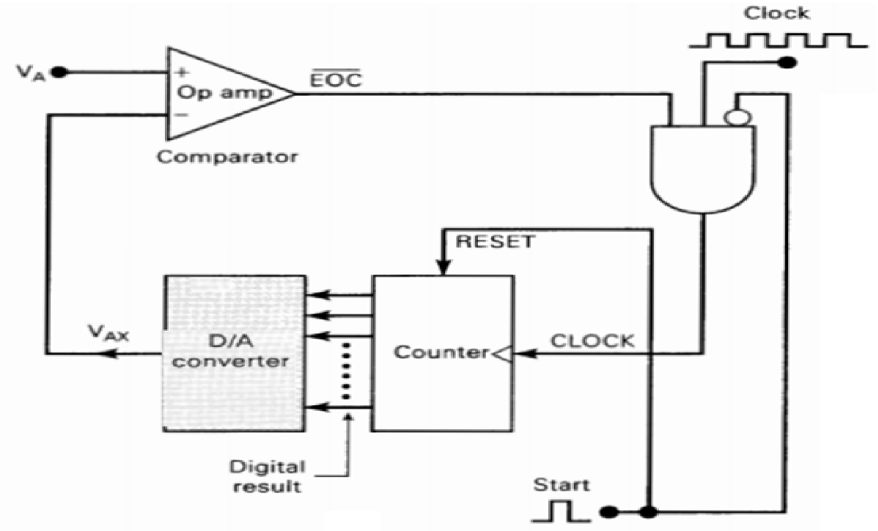
By considering the above figure, answer the following questions:

- **(i)** Determine the weight of each input bit of the following DAC.
- **(ii)** Change R_f to 250Ω and determine the full scale output.

Q3. Explain the general working principle of Analog to Digital Converter (ADC) with block diagram.

Q4. What is Digital Ramp ADC? Explain the working principle of it with the conversion of input voltage 12V. Also show the resolution steps and conversion time for the ADC.

Q5.



Assume the following values for the above circuitry of Digital Ramp ADC with clock frequency = 1 MHz, V_T = 0.1 mV, DAC has F.S. output = 10.23 V and a 10-bit input. Determine the following values.

(i) The digital equivalent obtained for V_A = 3.728 V.

(ii) The conversion time.

(iii) The percentage resolution of this converter.