BASIC ELECTRONIC CIRCUITS

Tutorial 12th April 2019

- Design a band pass active filter having f_L = 400 Hz, f_H = 2 KHz and pass band gain of 4. Assume the resistor values as 1 KΩ, and calculate the feed back resistor value. Also determine Vo in terms of Vi at f = 100 Hz, 400 Hz, 894 Hz, 2 KHz, and 10 KHz.

- An op-amp based multivibrator (Astable) circuit is constructed using the following components, R1 = 35 KΩ, R2 = 30 K Ω, R = 50 K Ω, and C = 0.01 μF. Calculate the circuit's frequency of operation.

- A wien bridge oscillator is having R_f = 6.4 KΩ, R_i = 3.2 KΩ, series combination (R_1 = 5 KΩ, C_1 = 7.5nF), and parallel combination (R_2 = 13KΩ and C_2 = 4.65nF). Determine the transfer function of the feed back network (V_f/V_o), also determine the frequency of oscillations.

- Design a 4 bit R-2R ladder ADC, and determine Vo for following input bit sequences, i) 1000, and ii) 0001.