Subject : Mixed Signal Design   **CT-1**

Time : 1Hour   **M.M : 15**

Note : Attempt All question

1. Draw the circuit of first order active all pass filter and derived the expression for the for the voltage gain of first order active all pass filter.
2. Define an active filter. Design a first order active high pass filter for cut-off frequency of 10kHz and DC gain of 5.
3. Define the Z-transform and derive the relationship between Z-transform and DTFT.
4. What is switched capacitor? Derive the expression for equivalent resistance of bilinear structure of switched capacitor.
5. Draw the switched capacitor equivalent circuit of first order active filter and derive the expression for DC gain and cut off frequency of switched capacitor filter.