LIC&A-18EC4DCLIC

Numericals based on Module 4

1. Design an Astable Multivibrator using IC555 timer to generate an output waveform of 2kHz with 50% duty cycle.
2. Design a first order and second order Low pass filter circuit to have a cutoff frequency of 5 kHz using 741 op-amp.
3. Design a first order and second order High pass filter circuit to have a cutoff frequency of 2 kHz using 741 op-amp.
4. A second order low-pass filter has the following components: R1=68kΩ, R2=68kΩ, R3=150kΩ, C1=330pF, C2=680pF. Calculate the cutoff frequency.
5. A second order high-pass filter has the following components: R1=28kΩ, R2=56kΩ, C1=C2=1300pF. Calculate the cutoff frequency.
6. Design a single –stage bandpass filter to have a voltage gain of 1 and pass band from 1 kHz to 50 kHz.
7. A single stage band pass filter circuit has the following components: R1=R2=R3=3.9kΩ, C1=0.12μF, C2=600pF. Calculate its upper and lower cutoff frequencies.
8. Design a single stage band pass filter using 741 opamp with center frequency is to be 3.3 kHz and the pass band is to be approximately ±50Hz on each side.