

**CHAPTER 4: FILTERS(16 MARKS)**

**3 Marks :**

- 1) Give classification of filter.
- 2) Draw ideal and practical frequency response of all filters.

**4 Marks :**

- 3) For the first order Butterworth HPF, calculate cut-off frequency  $f_c$ ,  $\omega_c$  and pass band gain, if the values of components are  $R=15k\Omega$ ,  $C=0.01\mu f$ ,  $R_f=10k\Omega$ ,  $R_1=5k\Omega$ .
- 4) Draw the circuit diagram of wide BPF and its frequency response.
- 5) Give the relation between Bandwidth, Q and cut off frequency.
- 6) Draw the circuit and frequency response of active notch filter. Write the formula for **fn**.
- 7) State merits and demerits of active filter over passive filter.
- 8) Draw a neat circuit diagram of all pass filter and explain.

**CHAPTER 5: TIMERS(18 MARKS)**

**3 Marks:**

- 9) Draw pin diagram of IC NE 566 VCO and IC 565 PLL.
- 10) Define Lock range, Capture range, Free running state.
- 11) Draw & explain circuit diagram of touch plate switch using IC 555.

**4 Marks:**

- 12) Draw pin diagram and internal block diagram of IC 555.
- 13) Draw and explain block diagram of PLL
- 14) Explain frequency multiplier using PLL with block diagram and waveform.
- 15) Draw and explain FM demodulator using IC 565.
- 16) Draw MMV using IC 555 and determine pulse width if  $C=0.047\mu f$  and  $R=56K\Omega$ .

**CHAPTER 6: OSCILLATORS(16 MARKS)**

**3 Marks:**

- 17) Draw and explain AMV using IC 741 with waveform.
- 18) Draw the circuit diagram of MMV using IC 741. Explain its working.
- 19) Draw and explain VCO using IC 555.
- 20) Draw BMV using IC 741.
- 21) Design the phase shift oscillator for  $f_o = 200Hz$ .

**4Marks :**

- 22) Draw and explain RC Phase shift oscillator using IC 741 and give expression of o/p frequency.
- 23) Draw and explain BMV using IC555 with waveforms.
- 24) Draw & explain with suitable circuit diagram& waveforms, the Schmitt trigger using IC 555.
- 25) Draw & explain circuit diagram of square wave generator using IC 555.
- 26) An IC 555 is connected in astable mode, calculate  $T_c$ ,  $T_d$ , free running frequency, duty cycle if  $R_A = 6.8K\Omega$ ,  $R_B = 3.3K\Omega$ ,  $C = 0.1\mu f$ .