Module –II

13. (a) Derive the gain and frequency conditions for oscillation of a RC phase shift oscillator. (10)

(b) Derive the general transfer function of a multi feedback network filter and explain how HPF and BPF can be realised by changing feedback elements. . (10)

14. Explain the working of a state variable filter and derive the transfer function of LPF,HPF and BPF in a state variable filter. (20)

Module -III

15. Explain the working of a Successive approximation ADC using R-2R ladder network DAC. Derive the output equation of R-2R ladder network DAC. (20)

16. Explain the working of a current steering DAC. Explain different pipelining method in DAC. (20)

Module -IV

17. Derive the equations for lock range and capture range of a PLL. (20)

18. With help of circuit diagrams explain how IC723 can be configured as a low voltage and high voltage regulator. Derive the output voltage equation for both cases. . (20)