All questions carry equal marks(10 marks)

Q.1	what do you mean by input offset voltage? Draw and explain offset voltage compensating network
Q.2	Sketch the circuit of Op-amp as Differentiator and explain with necessary waveforms.
Q.3	what are the feedback configurations. Draw an Op-amp circuit with voltage series feedback and write an expression for do you mean by input offset voltage? Draw and explain offset voltage compensating network Rif, Rof and Af Bandwidth. Hence show that the voltage follower is the case of voltage series feedback.
Q.4	Explain the following terms regarding PLL: (1) Free running mode (2) Capture mode (3) Blocking mode.
Q.5	Define and explain the following Op-amp parameters and describe the laboratory method for measuring them with necessary circuit diagram and formulas: (1) Input offset voltage (2) Input bias current. (3) Open loop voltage gain. (4) CMRR
Q.6	List the important features of LM 380 power audio amplifier.
Q.7	List the applications of PLL and describe any one briefly.
Q.8	Draw the circuit diagram of Differential amplifier with two Op-amps and prove that output voltage Vo = [1+ RF / R1] Vxy.
Q.9	Draw and explain instrumentation amplifier? Obtain the equation of output voltage. List the applications of it.
Q.10	Draw the circuit for dual input balanced output differential amplifier using constant current bias circuit. Why current mirror circuit preferred to constant current bias for differential amplifier.
Q.11	Draw the connection diagram and block diagram of audio power amplifier IC LM 380 and explain it's operation.
Q.12	Draw the circuit in inverting configuration of a summing amplifier. Derive the expression for the output voltage. Show that the same circuit with little change can also be used as scaling and averaging amplifier, Obtain necessary formulas.
Q.13	Explain basic design considerations for designing regulated power supply.
Q.14	List the advantage of adjustable voltage regulator over fixed voltage regulator.
Q.15	Describe Schmitt trigger with necessary circuit.
Q.16	Explain use of Op-amp as a zero crossing detector.

Q.17	Explain use of Op-amp as a + ve and – ve clipper.
Q.18	Explain V.C.O using IC 566
Q.19	Explain Peaking amplifier using Op-amp.
Q.20	Draw the block diagram of phase locked loop IC 565. Explain the working principle of PLL.
Q.21	Sketch the diagram of 555 timer as an astable multivibrator having 50% duty cycle. Explain it's working and derive equation for frequency of output waveform
Q.22	what are the feedback configurations. Draw an Op-amp circuit with voltage shunt feedback
Q.23	Design an adjustable voltage regulator using IC LM 317 to satisfy the following specifications: Output voltage Vo = 5 to 12 volts, Max. Output current = 1.0Amp. Explain why additional capacitors and diodes are used in the circuit
Q.24	write an expression for do you mean by input offset voltage
Q.25	what is voltage regulator? Explain why voltage regulation is needed. Define and Explain SV, Ro and ST of a regulator.
Q.26	Sketch the circuit of Op-amp as Integrator and explain with necessary waveforms.
Q.27	With suitable diagram explain the working of IC 555 as a monostable multivibrator with input trigger wave shaping network. Derive the equation of turn on time.
Q.28	State different applications of astable multivibrator and explain any one of them with necessary diagram and waveforms.
Q.29	Discuss the main features of IC 78 and 79 series voltage regulators.
Q.30	List the important features of LM 380 power audio amplifier.
Q.31	List the applications of PLL and describe any one briefly.
Q.32	State different applications of astable multivibrator and explain any one of them with necessary diagram and waveforms.
Q.33	Draw the connection diagram and block diagram of audio power amplifier IC LM 380 and explain it's operation.
Q.34	Draw the connection diagram and block diagram of audio power amplifier IC LM 380 and explain it's operation.
Q.35	What do you mean by input offset voltage? Draw and explain offset voltage compensating network
Q.36	Sketch the circuit of Op-amp as Differentiator and explain with necessary waveforms.
Q.37	What are the feedback configurations. Draw an Op-amp circuit with voltage series

	feedback and
Q.38	Write an expression for do you mean by input offset voltage? Draw and explain offset voltage compensating network Rif, Rof and Af Bandwidth. Hence show that the voltage follower is the case of voltage series feedback.
Q.39	With suitable diagram explain the working of IC 555 as a monostable multivibrator with input trigger wave shaping network. Derive the equation of turn on time.
Q.40	Discuss the main features of IC 78 and 79 series voltage regulators.
Q.41	Explain Op amp as a clamper circuit.
Q.42	Explain differential amplifier.
Q.43	Explain ideal op amp conditions.
Q.44	Explain block diagram of Op amp and function of each block
Q.45	Draw the block diagram of IC 555 and state the function of each block
Q.46	draw the pin diagram of IC 555 and state functions of each pin.
Q.40	State different applications of monostable multivibrator and explain any one of them with necessary diagram and waveforms.
Q.47	Design a Differentiator circuit to differentiate input signal of amplitude 3V P.P at 200Hz that varies in frequency from 10 Hz to about 1 KHz.
Q.48	draw pin diagram of Op amp and state the function of each pin
Q.49	Explain use of op amp as Logarthmic amplifier.
Q.50	Compare op amp as inverting and non inverting amplifier
Q.51	Explain level translator circuit.
Q.52	With suitable diagram explain the working of IC 555 as a monostable multivibrator with input trigger wave shaping network. Derive the equation of turn on time.
Q.53	Discuss the main features of IC 78 and 79 series voltage regulators.
Q.54	List the important features of LM 380 power audio amplifier.