

Instructions:		
1) All questions in Section-I carry equal marks		
2) Attempt any THREE questions in Section-I		
3) Question IX in section II is COMPULSORY		
Section-I		
Q. I		
A)	What is differential amplifier? Explain basic differential amplifier with necessary circuit diagram.	07
B)	Write notes on Widlar Current source.	07
Q-II		
A)	Draw the circuits for improving CMRR and explain it in detail	07
B)	Explain complimentary emitter follower output stage and level translator in brief	07
Q.III		
A)	Explain inverting and non-inverting summing amplifier with necessary circuit diagram	07
B)	Explain following Op-amp circuit using diode (1) Peak detector (2) Clipper	07
Q.IV		
A)	Explain voltage to current converter and current to voltage converter with necessary circuit diagram.	07
B)	Explain following applications of V-I converter. (1) Low voltage DC voltmeter (2) Zener diode tester	07
Q. V		
A)	Explain block diagram of IC series regulator and also explain Zener voltage reference circuit of regulator	07
B)	Explain 3-terminal positive voltage regulator with its functional block diagram	07
Q-VI		
A)	Explain 4-terminal positive regulator with necessary circuits	07
B)	Write short notes on Open loop current regulator	07
Q.VII		
A)	Explain basic switching regulator with necessary circuit diagram	10
B)	Briefly explain circuit diagram of positive switching regulator using IC LM105	04
Q.VIII		
A)	Discuss free running switching regulator with necessary circuit diagram	10
B)	Briefly explain switching regulator using 3-terminal Linear regulator	04
Section-II		
Q-IX	Answer following in brief (ANY EIGHT)	
(A)	What is the main purpose of differential amplifier?	08
(B)	Draw the schematic block diagram of an Op-amp	

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(C)	What do you mean by Current mirror?	
(D)	What are the main requirements of good current source?	
(E)	Draw the circuit of adder-subtractor using op-amp	
(F)	State the important features of an instrumentation amplifier.	
(G)	Draw the precision full wave rectifier circuit using OPAMP	
(H)	What are the applications of the I/V converter?	
(I)	Write the full form of SOA	
(J)	What do you mean by circuit limit and safe area limit in regulator protection?	
(K)	Which IC's are come under 3-terminal positive voltage regulator?	
(L)	Draw the circuit of fixed dual tracking regulator	
(M)	Draw the block diagram of switching regulator scheme	
(N)	Which IC's used as positive switching regulator?	
(O)	Draw the block diagram of switching regulator with pulse width modulated control	
(P)	What are the main purpose of the switching mode operation	

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