[Time: 3 Hours] **[Marks:80]**

Please check whether you have got the right question paper.

N.B:
1. Question no.1 is compulsory solve any three from remaining questions.
2. Assume suitable data if necessary.
3. Diagrams to be drawn neatly.

Q.1	A)	Define following OPAMP parameters. 1) C.M.R.R 2) Slew rate 3) Input offset voltage 4) Input bias current 5) output resistance	**05**
	B)	What are comparators? How are they classified, state applications of comparators.	**05**
	C)	What are active filters? How are they classified? State its applications.	**05**
	D)	Draw the block diagram and explain the operation of switching regulator.	**05**
Q.2	A)	Design second order high pass filter using OPAMP at f_0= 1KHZ and with gain at 2.	**10**
	B)	Draw block diagram and explain function of each block of operational amplifier.	**10**
Q.3	A)	Draw circuit diagram of temperature compensated log amplifier and explain its operation. State its applications.	**10**
	B)	Draw circuit diagram and explain the operation of parallel comparator (flash type) ADC. State its advantages and disadvantages.	**10**
Q.4	A)	Design a monostable multivibrator to produce an output pulse 10 second wide. Draw neat circuit diagram and all the waveforms.	**10**
	B)	Draw the circuit diagram and explain the operation of triangular wave generator using OPAMP. Explain the modifications required to obtain saw tooth wave output.	**10**
Q.5	A)	Draw block diagram and explain the operation of PLL (phase locked l00P). State its applications.	**10**
	B)	Explain with circuit diagram 1) short circuit protection 2) fold back current limiting in 723 IC voltage regulator.	**10**
Q.6		Write notes on following (Any two) 1) RC phase shitt oscillator using OPAMP. 2) Schmitt trigger and its applications. 3) Instrumentation amplifier.	**20**

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