Sample Test Paper -I

COURSE	**: ELECTRONICS GROUP**	9070
COURSE CODE	**: ET/EJ/EX/EN/DE/IE/IS/IC/IU/ED/EI**	
SEMESTER	**: FOURTH**	
SUBJECT	**: LINEAR INTEGRATED CIRCUITS**	
MAX MARKS	**: 20**	**TIME: 1 HOUR**

Instructions:

1. All questions are compulsory.
2. Illustrate your answers with neat sketches wherever necessary.
3. Figures to the right indicate full marks.
4. Assume suitable data if necessary.
5. Preferably, write the answers in sequential order.

Q. No. 1 Attempt Any TWO. **04 Marks**

a. Define following parameters with respect to OP AMP.
   1) Input bias current
   2) Input offset current

b. Draw the transfer characteristics of OP AMP.

c. State the equation for output Voltage for inverting & Non Inverting OP AMP.

Q. No. 2 Attempt Any TWO. **08 Marks**

a. Name different blocks of OP AMP. State which type of circuit is used in each block

b. Explain how CMRR of differential amplifier can be improved.

c. Draw the circuit of non inverting configuration of OP AMP. Derive the expression for voltage gain.

Q. No. 3 Attempt Any TWO. **08 Marks**

a. It is desired to achieve an output using OP AMP given by the equation, $V0 = 5V_1 + 3V_2$, Where V_1 & V_2 are input voltages. Draw the necessary circuit using OP AMP.

b. Draw the circuit of active integrator & derive the relation between input & output circuit components.

c. Name the type of output stage of OP AMP. State the property established by this stage.

Sample Test Paper -II

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SEMESTER	**: FOURTH**	
SUBJECT	**: LINEAR INTEGRATED CIRCUITS**	
MAX MARKS	**: 20**	**TIME: 1 HOUR**

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5. Preferably, write the answers in sequential order.

Q. No. 1 Attempt Any Two. **04 Marks**

a. Explain roll off rate with respect to filter circuit .
b. Draw neat circuit of temperature compensated log amplifier. Explain how temperature compensation is achieved.
c. Draw circuit diagram of Peak to Peak detector using OP AMP.

Q. No. 2 Attempt Any Two. **08 Marks**

a. Draw the circuit of window detector & explain it with waveform.
b. Classify the filter circuits. Design first order HPF with cut off frequency of 1KHz with pass band gain of 2.
c. Draw block diagram of IC 555. Give functions of each pin.

Q. No. 3 Attempt Any Two. **08 Marks**

a. Draw the circuit of astable multivibrator using IC 555 & describe its working with necessary waveforms. State the expression for the time period. What modification can be made to get asymmetrical square wave output. Draw the modified circuit.
b. Draw the block diagram of IC 565. List the functions of each pin.
c. Draw a net diagram to obtain the given output using OP AMP,

   $V_{o1} = K1 (V1 * V2)$

   $V_{o2} = K2 (V3 / V4)$

   Where V1,V2,V3,V4 are input signals. K1 & K2 are constants.