



## COLLEGE OF ENGINEERING & TECHNOLOGY

Department: Electronics and Communications

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Course : Analog Signal Processing

Course Code: EC434

### Problem Set 5

- P1. If the clock frequency of switched capacitor equivalent resistor is 100kHz, find the value of the capacitor C that will emulate a 1MHz resistor.
- P2. In the circuit in fig.1, for an applied DC voltage of 1V:
- If  $C_1$  is 0.1pF, what charge is transferred for each cycle of a 1MHz clock?
  - What is the average current drawn from the input source?
  - For a 2 pF feedback capacitance, what change in output would you expect for each cycle of input clock?
  - Sketch the output for  $t=0$  to  $10\mu\text{sec}$ ?
  - Compare the results for part d. with the output wave form of the continuous time equivalent circuit?

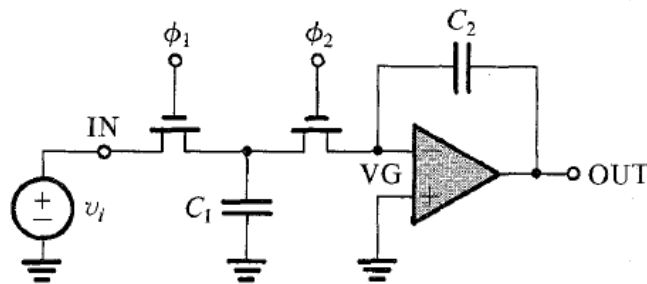


Figure 1

- P3. Design the Antoniou- Inductance Simulation circuit to realize the inductance of:
- 10H if resistors are equal to 10k $\Omega$ .
  - 0.1H if capacitor impedance is 10k $\Omega$  at  $f=1\text{KHz}$ .