

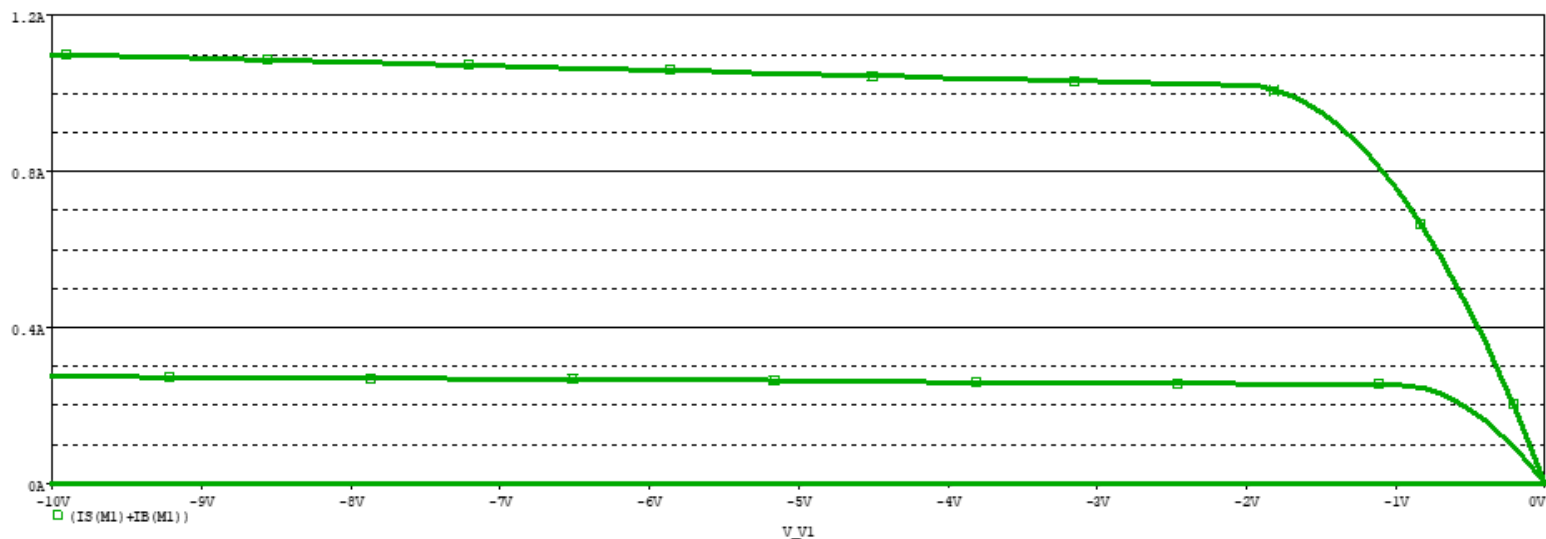
## BE lab 13

Name:

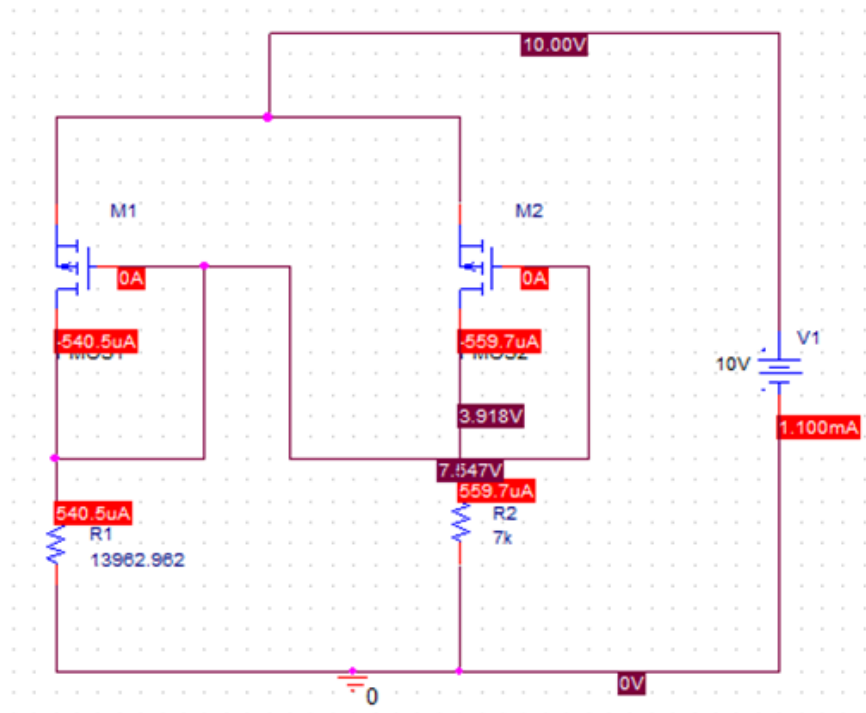
Basil khowaja

Aamaina mukarram

## Task2:

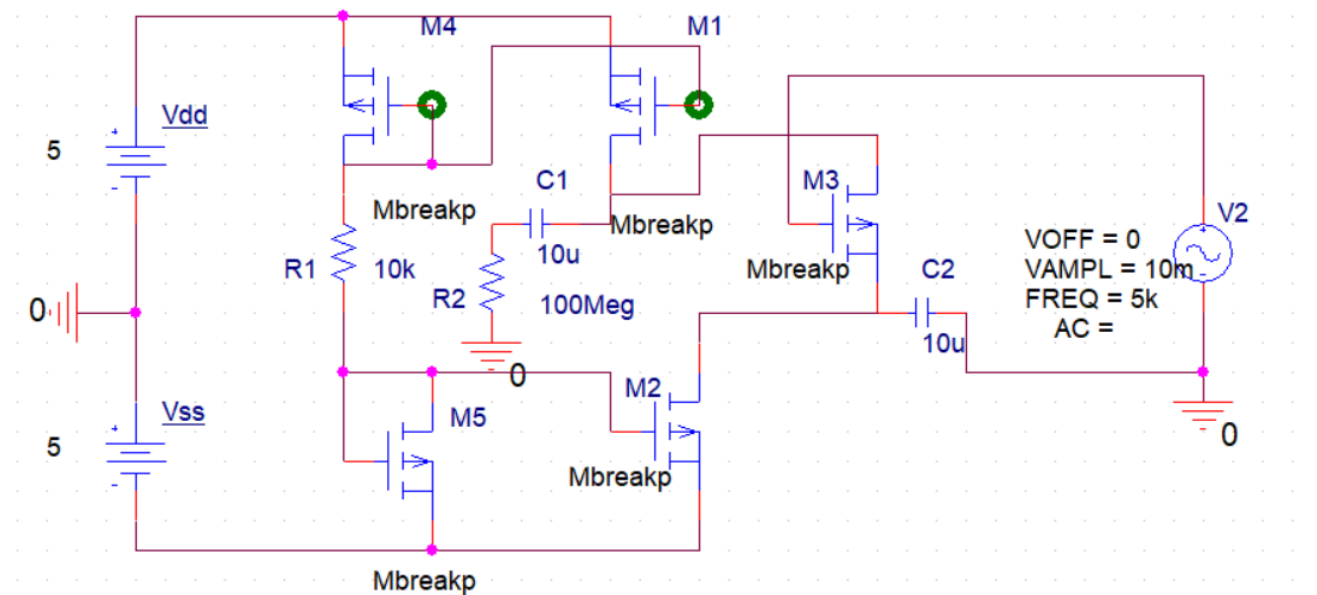


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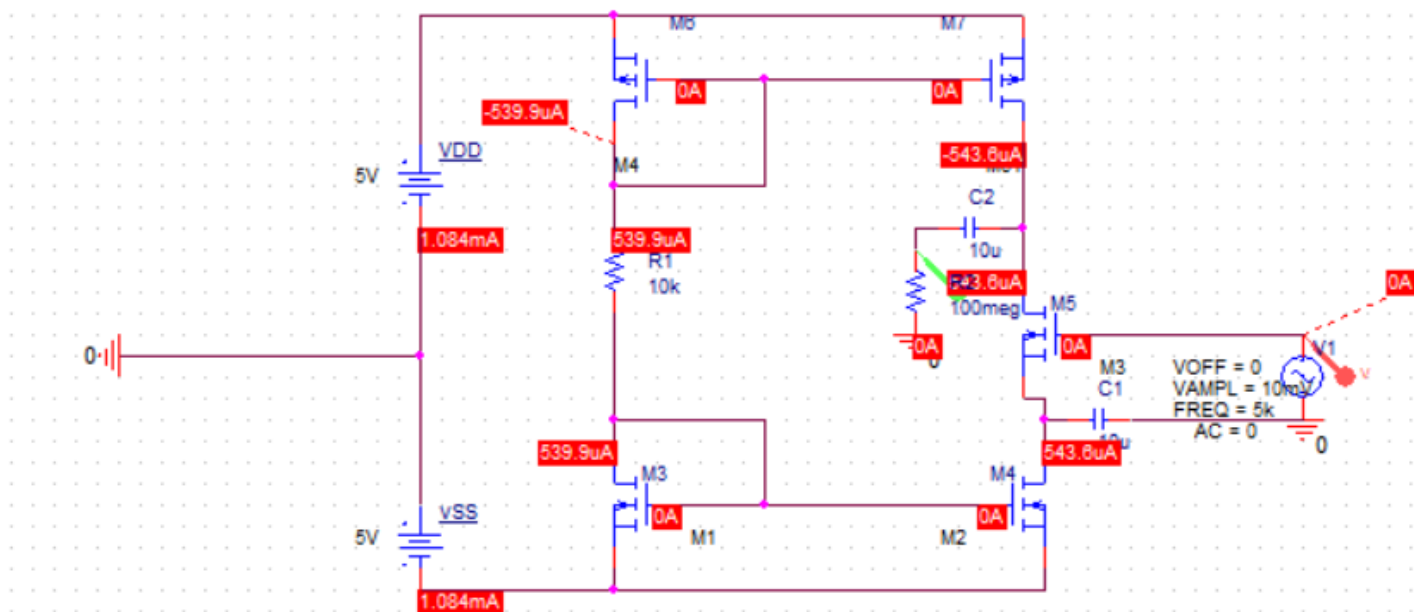
## BE lab 13

### Task4:



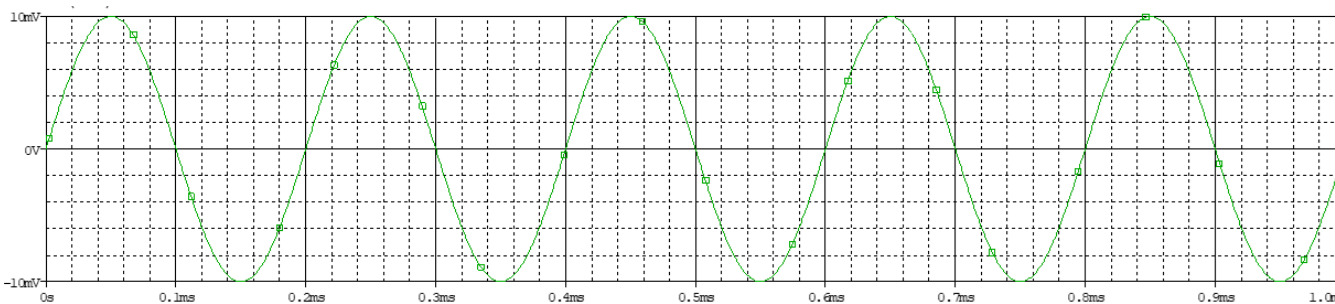
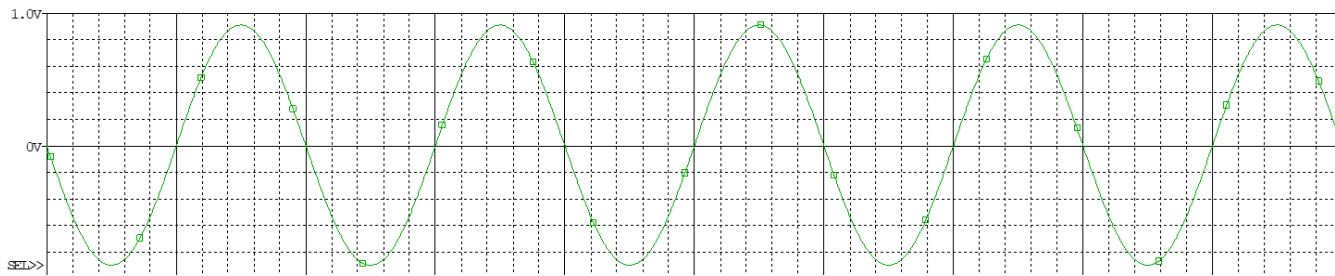
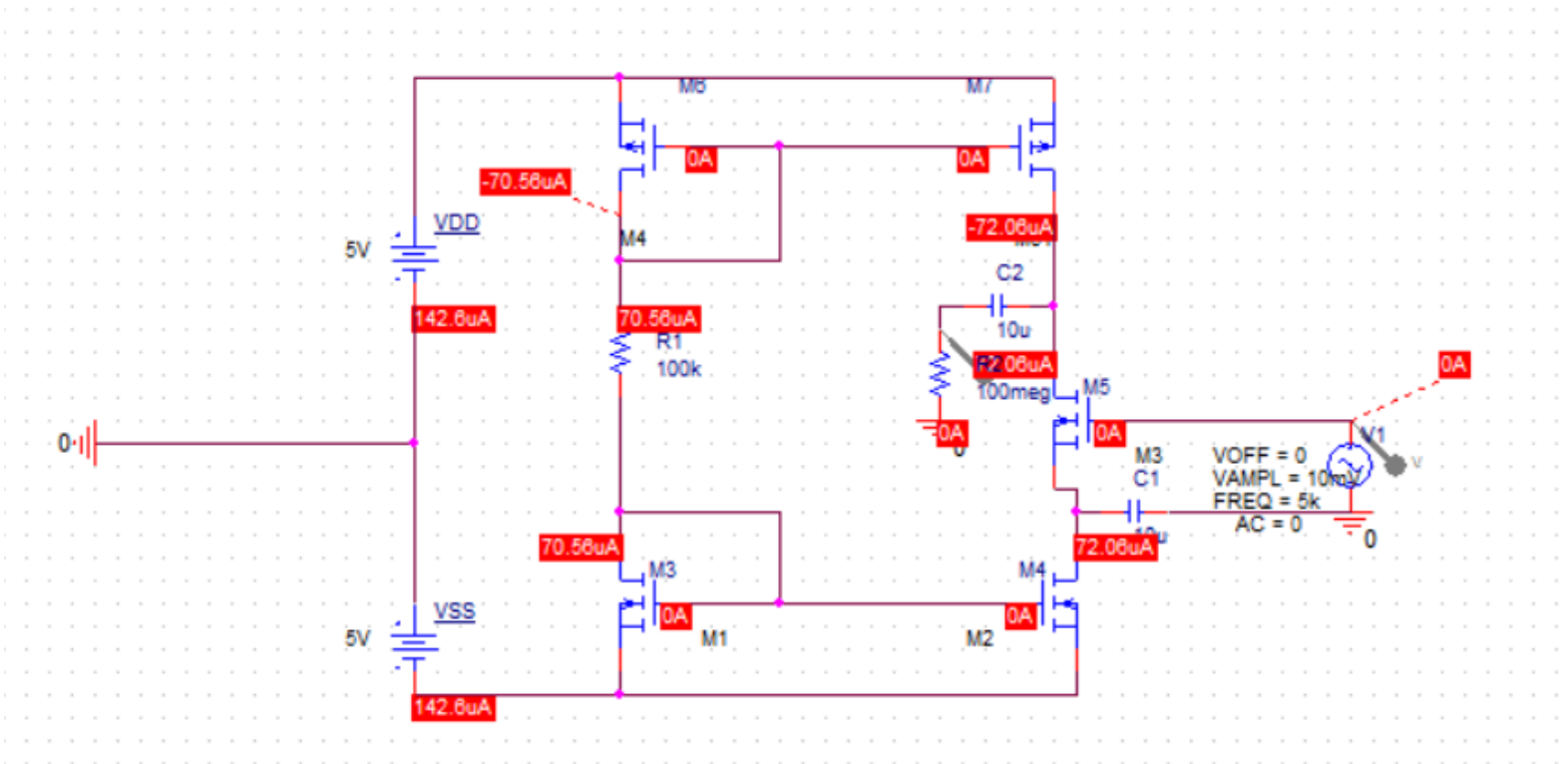
### Task5:

### When $R=10k$



## BE lab 13

When  $R=100k$ :



## Task6 (Post lab):

### Fabrication of chips:

The fabrication of integrated circuits consists basically of the following process steps:

- 1) **Lithography:** The process of defining patterns on a wafer surface by applying a thin uniform layer of viscous liquid (photo-resist). Baking hardens the photo-resist, which is then selectively removed by projecting light through a reticle containing mask information.
- 2) **Etching:** Removing unwanted material from the wafer's surface selectively Etching agents are used to transfer the photo-resist pattern to the wafer.
- 3) **Deposition:** On the wafer, various materials' films are applied. Physical vapour deposition (PVD) and chemical vapour deposition (CVD) are the most commonly used processes for this purpose (CVD).
- 4) **Chemical Mechanical Polishing:** A planarization technique in which a chemical slurry containing etchant agents is applied to the wafer surface.
- 5) **Oxidation:** In the oxidation process oxygen (dry oxidation) or  $H_2O$  (wet oxidation) molecules convert silicon layers on top of the wafer to silicon dioxide.
- 6) **Ion Implantation:** Oxygen (dry oxidation) or  $H_2O$  (wet oxidation) molecules convert silicon layers on top of the wafer to silicon dioxide during the oxidation process.
- 7) **Diffusion:** Following ion implantation, a diffusion step is used to anneal bombardment-induced lattice defects