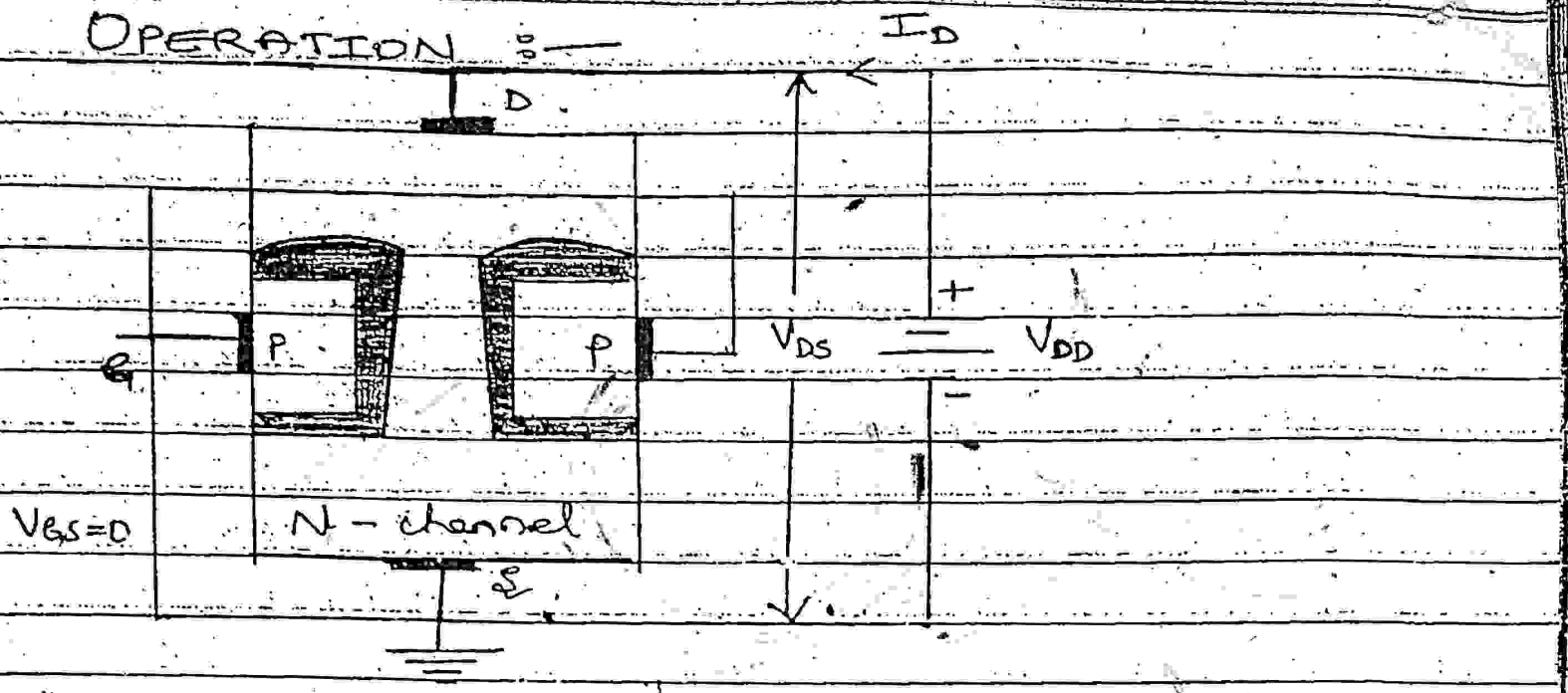
OPERATION :—



(i) When $V_{GS}=0$, & $V_{DS} > 0$ (some +ve volt)

* When voltage is applied between the drain & source with DC supply V_{DD}, electrons flow from source to drain through the narrow channel existing between depletion region.
* When $V_{GS}=0$ & V_{DS}, the PN junctions are reverse biased. Because of reverse biasing, depletion region widens at the D end of channel, & reduces towards the S end.
* As V_{DS} is increased from zero, I_D increases. As the channel width starts decreasing between source (S) to drain (D), current I_D saturates.

(ii) As $V_{GS} < 0$ (-ve volt)

* A voltage source is connected between the gate (G) & source (S) terminals as V_{GS}, which is negative. When the G to S voltage V_{GS} is increased with negative value, reverse bias across Gate to source also increases.

This reduces the width of depletion channel, & thus