Fundamentals of Nanotransistors
L1.3 Quiz
ANSWERS

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Lecture 1.3: MOSFET Device Metrics

1) Which of the following describes the **subthreshold swing** of a MOSFET?

a) The increase in drain voltage needed to increase the drain current by a factor of 10 at a fixed gate voltage.
b) The increase in gate voltage needed to increase the drain current by a factor of 10 at a fixed drain voltage.
c) The difference in gate voltage divided by the difference in drain voltage at a constant current in the subthreshold region.
d) The difference in drain voltage divided by the difference in gate voltage at a constant current in the subthreshold region.
e) The change in drain voltage divided by the change in drain current in the saturation region.

2) Which of the following describes the **DIBL** of a MOSFET?

a) The increase in drain voltage needed to increase the drain current by a factor of 10 at a fixed gate voltage.
b) The increase in gate voltage needed to increase the drain current by a factor of 10 at a fixed drain voltage.
c) The difference in gate voltage divided by the difference in drain voltage at a constant current in the subthreshold region.
d) The difference in drain voltage divided by the difference in gate voltage at a constant current in the subthreshold region.
e) The change in drain voltage divided by the change in drain current in the saturation region.

3) Which of the following expressions describes the **transconductance** of a MOSFET?

a) $\P I_{DS} / \P V_{DS}\big|_{V_{GS}}$
b) $\P I_{DS} / \P V_{GS}\big|_{V_{DS}}$
c) $\P V_{DS} / \P I_{DS}\big|_{V_{GS}}$
d) $\P V_{GS} / \P I_{DS}\big|_{V_{DS}}$
e) $\P V_{DS} / \P V_{GS}\big|_{I_{DS}}$