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MOS Transistor (MOSFET) Device Physics - Quiz

Reviewed 2026

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MOSFET Device Physics - Quiz ideas

1) What does MOSFET stand for?
   A. Metal Oxide Semiconductor Field Effect Transistor
   B. Metal Oxide Semiconductor Field Emission Transistor
   C. Metal Oxide Semiconductor Field Effect Transformer
   D. Metal Oxide Semiconductor Field Emission Transformer

2) Which terminals are part of a MOSFET?
   A) Source, Drain, Gate, Collector
   B) Source, Drain, Gate, Emitter
   C) Source, Drain, Gate, Base
   D) Source, Drain, Gate, Body

3) What is the typical potential of interest in a MOSFET 2D model?
   A. VGS and IDS
   B. VDS and IDS
   C. VGS and VDS
   D. VGS and VBS

4) In the ID-VG characteristics, what happens when VGS > VT?
   A. No channel formation
   B. Channel formation
   C. Depletion region formation
   D. Accumulation region formation

5) What is the pinch-off point in MOSFET IV characteristics?
   A. When VDS = VGS + VT
   B. When VDS = VGS * VT
   C. When VDS = VGS - VT
   D. When VDS = VGS / VT

6) What is subthreshold conduction?
   A. Linear leakage before VT
   B. Exponential leakage before VT
   C. Exponential leakage after VT
   D. Linear leakage after VT

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7) What is Drain Induced Barrier Lowering (DIBL)?
   A. A short-channel effect where the threshold voltage decreases as the drain voltage increases
   B. A long-channel effect where the threshold voltage decreases as the drain voltage increases
   C. A short-channel effect where the threshold voltage increases as the drain voltage decreases
   D. A long-channel effect where the threshold voltage increases as the drain voltage decreases

8) What is Gate Induced Drain Leakage (GIDL)?
   A. Leakage current when a high electric field is applied to the gate-source overlap region
   B. Leakage current when a high electric field is applied to the drain-source overlap region
   C. Leakage current when a high electric field is applied to the gate-drain overlap region
   D. Leakage current when a high electric field is applied to the gate-body overlap region

9) What is the subthreshold slope (SS)?
   A. The gate voltage required to increase or reduce IDS by one decade
   B. The drain voltage required to increase or reduce IDS by one decade
   C. The source voltage required to increase or reduce IDS by one decade
   D. The body voltage required to increase or reduce IDS by one decade

10) What happens to the PN junction depletion region width when it is reverse biased?
   A. It decreases
   B. It remains the same
   C. It oscillates
   D. It increases

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