Special Problem 4.1-1

1. Which one of the following statements about MOSFETS is false?

A. The source and drain wells of a NMOS device are made of heavily doped n-type Silicon.

B. Free electrons are the majority carrier in an inverted layer of a PMOS device.

C. Silicon dioxide is a very poor conductor.

D. The substrate of an NMOS device is made of p-type Silicon.

2. Which of the following statements about a MOSFET in triode region is true?

A. A channel has been induced and it is also pinched off.

B. A channel has not been induced but it is pinched off.

C. A channel has been induced but it is not pinched off.

D. A channel has not been induced, nor is it pinched off.

E. A channel is hacked off, but has yet to mouth off.
3. Which one of the following statements about MOSFETS is true?

A. When in saturation, the gate current is greater than zero.

B. It is a three-terminal device.

C. It behaves like a voltage-controlled resistor, provided that the excess gate voltage is positive and $V_{DS}$ is small.

D. When in triode mode, the drain current is independent of $V_{DS}$.

4. Which one of the following statements about MOSFETS is false?

A. Both $V_{GS}$ and $V_{DS}$ can affect the conductivity of the induced channel.

B. An inversion layer is required for current to flow from drain to source.

C. An electric field must be established within the channel in order for an inversion layer to be formed.

D. No current can flow through the channel once it is “pinched off”.