

Intro to Memory Quiz

Reviewed 2025



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Intro to Memory – Quiz Ideas

- 1) Semiconductors are materials: (select best answer)
 - A. That possess electrical characteristics between those of conductors and insulators.
 - B. Which can be engineered to exhibit specific electrical characteristics allowing the manufacturing of integrated circuits.
 - C. That have four valence (outer shell) electrons.
 - D. All of the above
- 2) What increases the conductivity for N-type silicon?
 - A. Extra electrons
 - B. Holes (deficiency of electrons)
 - C. Silicon
 - D. Boron
- 3) Which of the following statements is true for the dopant boron (B)? Select the best answer.
 - A. It is a P-type dopant.
 - B. It increases "hole" current.
 - C. It has 3 valence electrons.
 - D. All of the above
- 4) A basic DRAM memory cell consists of a _____ and a _____.
 - A. Input; Output
 - B. Transistor; Capacitor
 - C. Cathode; Anode
 - D. Transmitter; Receiver

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- 5) Given two capacitors, where all characteristics are the same except that one capacitor has a dielectric thickness of 80 Angstroms and the other one 40 Angstroms, which one would be able to hold more charge?
- A. The one with the 80 Angstrom dielectric thickness
 - B. The one with the 40 Angstrom dielectric thickness
 - C. It is indistinct. Both can hold the same amount of charge.
 - D. The amount of charge a capacitor can hold does not depend on dielectric thickness.
- 6) At Micron, the specific type of transistor used in the DRAM cell is referred to as a:
- A. MBET
 - B. Diode
 - C. BJT
 - D. MOSFET
- 7) Once a conducting channel has been formed directly under the MOSFET transistor gate, current can flow from source to drain and vice-versa. What determines the direction of current flow?
- A. The strength of the positive voltage applied to the transistor gate.
 - B. The voltage bias that has been applied to the source and drain regions.
 - C. The amount of N-type dopant that has been applied to the source/drain regions.
 - D. None of the above.
- 8) After a read operation, the DRAM capacitor loses its charge. This requires it to be:
- A. Deleted
 - B. Refreshed
 - C. Erased
 - D. Destroyed

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9) What is the purpose/function of a Capacitor in a DRAM memory cell?

- A. Controls access to the memory cell.
- B. Permanently stores information.
- C. Temporarily stores information.
- D. Stores information even when power is off

10) What happens when a NAND Flash cell is erased?

- A. Electrons are added to the control gate
- B. Electrons are added to the storage node
- C. Electrons are removed from the control gate
- D. Electrons are removed from the storage node

11) What happens when a NAND Flash cell is programmed?

- A. Electrons are added to the control gate
- B. Electrons are added to the storage node
- C. Electrons are removed from the control gate
- D. Electrons are removed from the storage node

12) During a NAND read operation, if current flow is detected in the channel, the cell is interpreted as:

- A. 1
- B. 0
- C. Programmed
- D. Refreshed

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13) During a NAND read operation, if no current is detected in the channel, the cell is interpreted as:

- A. 1
- B. 0
- C. Erased
- D. Unknown

14) NAND Flash is categorized as:

- A. Non-Volatile Memory
- B. Volatile Memory
- C. Specialty IC (integrated circuit)
- D. Logic IC (integrated circuit)

15) DRAM is categorized as:

- A. Non-Volatile Memory
- B. Volatile Memory
- C. Specialty IC (integrated circuit)
- D. Logic IC (integrated circuit)

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