

Fundamentals of Nanotransistors

L4.7 Quiz

ANSWERS

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Lecture 4.7: VS Analysis of Experiments

1) What is the ratio, m_{app}/m_B ?

- a) **The transmission in the linear region.**
- b) The transmission in the saturation region.
- c) The transmission at $V_{DS} = V_{SAT}$
- d) The average transmission for $0 < V_{DS} < V_{DD}$.
- e) The maximum transmission for $0 < V_{DS} < V_{DD}$.

2) To extract the transmission in saturation from the fitted injection velocity, which of the following is needed?

- a) A transistor with low series resistance.
- b) A transistor with low output conductance.
- c) **Knowledge of the ballistic injection velocity.**
- d) Knowledge of the subband energy of quantum-confined carriers.
- e) A transistor with very low DIBL.

3) Which of the following is true?

- a) The MVS model assumes a mfp that is independent of channel length.
- b) Square law MOSFETs ($I_{DSAT} \propto (V_{GS} - V_T)^2$) can be analyzed with the MVS model.
- c) The MVS model does not describe p-channel MOSFETs.
- d) All of the above.
- e) **None of the above.**