

Friday Quiz 2 Solutions - STAT 324

Question 10

Question 10:

A student writes:

“Since the overall (omnibus) F-test was significant, that means all the explanatory variables in the model are statistically significant.”

In 1 - 2 sentences, explain why this interpretation is correct or incorrect and how it should be corrected.

PTS: 4

Model Solution:

This interpretation is **incorrect**. A significant omnibus F-test only tells us that **at least one** explanatory variable is significantly associated with the response variable, **not all** of them.

Rubric (Total: 4 Points)

Key Criteria (Required for Full Credit)	Points
Clearly states that the interpretation is incorrect	2
Accurately explains that the F-test only confirms at least one predictor is significant	2

Full-Credit Example:

This is incorrect. A significant F-test only tells us that at least one variable is associated with the outcome, not all of them.

Partial Credit Examples:

- **2 points:** “This is wrong because the F-test isn’t about all variables.”
(*Recognizes incorrectness but lacks clarity or specificity*)
- **0 points:** “This is correct because the F-test says they are all significant.”
(*Misunderstanding and incorrect claim*)