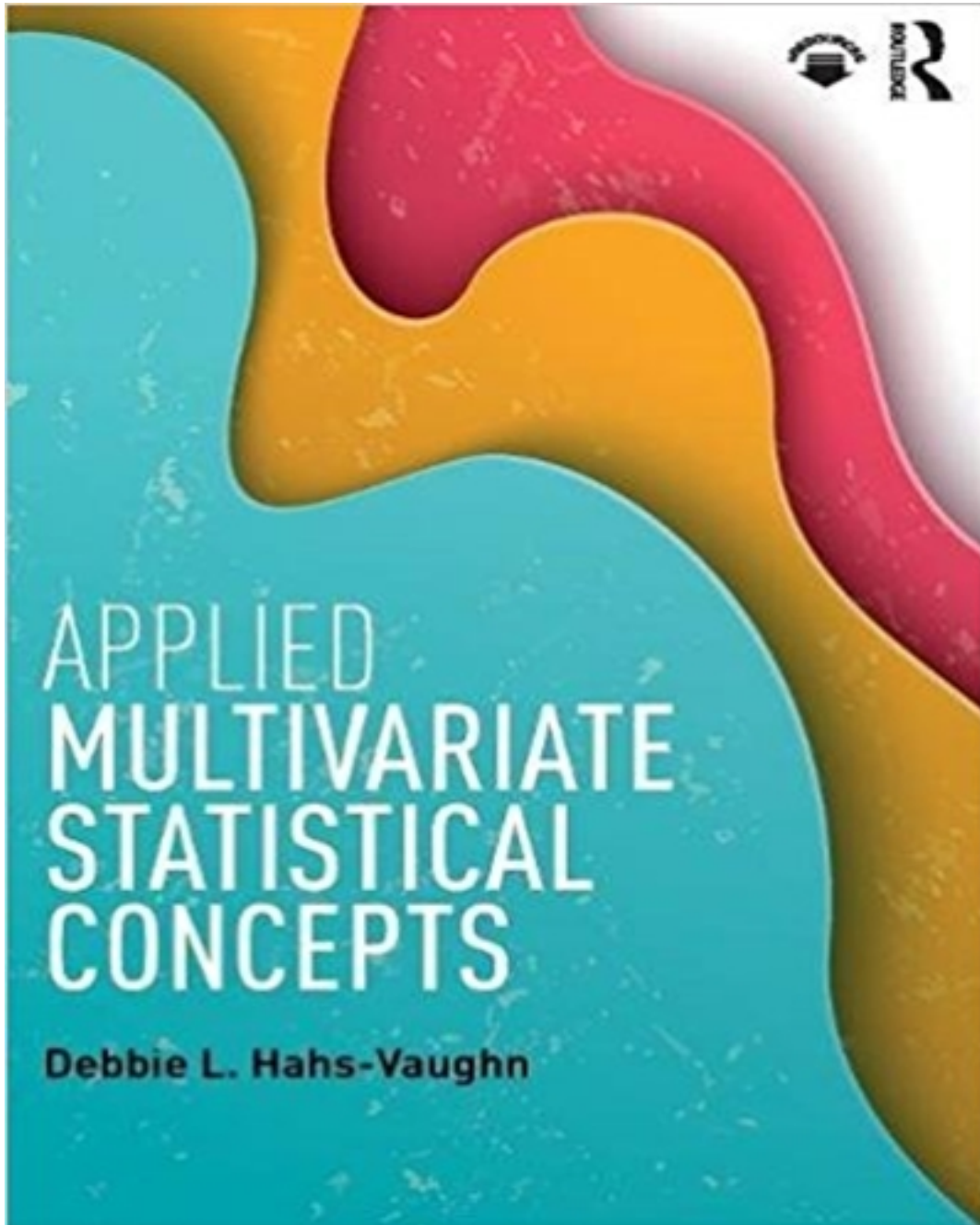


# Test Bank for Applied Multivariate Statistical Concepts 1st Edition by Hahs Vaughn

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# Test Bank

## Test Bank Chapter 2

Answers to each question are in bold. Feedback (in bold) follows each set of answers.

1. In hypothesis testing, the probability of rejecting  $H_0$  when  $H_0$  is false is denoted by which one of the following?

- a)  $\alpha$
- b)  $1 - \alpha$
- c)  $\beta$
- d)  **$1 - \beta$**

**Feedback: Rejecting  $H_0$  when  $H_0$  is false is a correct decision and specifically, one minus beta--also known as power**

2. In hypothesis testing, the probability of rejecting  $H_0$  when  $H_0$  is true is denoted by which one of the following?

- a)  **$\alpha$**
- b)  $1 - \alpha$
- c)  $\beta$
- d)  $1 - \beta$

**Feedback: Rejecting  $H_0$  when  $H_0$  is true is a Type I error, also known as alpha**

3. In hypothesis testing, the probability of failing to reject  $H_0$  when  $H_0$  is true is denoted by which one of the following?

- a)  $\alpha$
- b)  **$1 - \alpha$**
- c)  $\beta$
- d)  $1 - \beta$

**Feedback: Failing to reject  $H_0$  when  $H_0$  is true is a correct decision, computed as one minus alpha**

4. The probability of making a Type I error when rejecting  $H_0$  when  $H_0$  is true, at a significance level of .10, is which one of the following?

- a) 0%
- b) 5%
- c) **10%**
- d) 100%

**Feedback: The probability of making a Type I error, which is rejecting  $H_0$  when  $H_0$  is true, is alpha. In this case, alpha is .10 so the probability is 10%.**

5. Which one of the following is an assumption of the independent  $t$  test?

- a) equal sample sizes
- b) independence**
- c) linearity
- d) multicollinearity

**Feedback: Assumptions of the independent  $t$  test include independence, normality, and homogeneity of variance.**

6. The number of hours elite athletes spent training per week was measured immediately before competition and immediately after. To determine if the mean number of hours differs before versus after competition, which statistical test would be generated?

- a) independent  $t$  test
- b) dependent  $t$  test**
- c) simple regression
- d)  $z$  test

**Feedback: In this case, cases have been measured pre and post, reflecting paired samples or dependent  $t$  test**

7. A researcher wants to determine if time in incarceration can be predicted by family home income. Which statistical test would be generated to answer this question?

- a) independent  $t$  test
- b) dependent  $t$  test
- c) simple regression**
- d) two-factor ANOVA

**Feedback: This is a prediction model with one dependent variable (time in incarceration) and one independent variable (family home income), thus simple regression is appropriate.**

8. An increase of one point on the independent variable results in an increase of some value on the dependent variable. Which statistic is reflected in this statistic?

- a) criterion
- b) independent variable
- c) intercept
- d) slope**

**Feedback: The sample slope is referred to alternately as (a) the expected or predicted change in  $Y$  for a one-unit change in  $X$ , and (b) the unstandardized or raw regression coefficient.**

9. A value of  $+0.75$  indicates which type of relationship?

- a) negative
- b) positive**
- c) neutral

**Feedback: Positive values indicate positive relationships.**

10. A researcher has collected data on two categorical independent variables and one continuous dependent variable. If they are interested in using all the variables in one model, which one of the following statistical procedures is their only option?

- a) independent  $t$  test
- b) dependent  $t$  test
- c) simple regression
- d) two-factor ANOVA**

**Feedback: Of the procedures listed, only the two-factor ANOVA can accommodate two categorical independent variables and one continuous dependent variable**