STATISTICS OF BEHAVIORAL SCIENCES PRACTICE TEST (SAMPLE)

STUDY GUIDE

SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

- Practice answering questions under realistic conditions,
- Improve accuracy and speed,
- Review explanations to strengthen weak areas, and
- Approach the exam with greater confidence.

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

Remember: successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

How to Use This Guide

This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here's how to get the most out of your Examzify study guide:

1. Start with a Diagnostic Review

Skim through the questions to get a sense of what you know and what you need to focus on. Your goal is to identify knowledge gaps early.

2. Study in Short, Focused Sessions

Break your study time into manageable blocks (e.g. 30 – 45 minutes). Review a handful of questions, reflect on the explanations.

3. Learn from the Explanations

After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.

4. Track Your Progress

Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.

5. Simulate the Real Exam

Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.

6. Repeat and Review

Don't just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning. Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.

There's no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly, adapt the tips above to fit your pace and learning style. You've got this!

Questions

1. What is the problem with parametric statistic tests?

A. If you violated an assumption it can invalidate the test. They make judgments of parameters (population) based on statistics (samples).

B. They always provide exact p-values regardless of data.

C. They require no assumptions about the population distribution.

D. They are never affected by outliers.

2. Which statistic is used to test hypotheses about an unknown population mean when the population standard deviation is unknown?

A. T-statistic

B. Z-statistic

C. Chi-square statistic

D. F-statistic

3. In a matched-subjects design, what is the arrangement?

A. Two independent samples compared with a t-test.

B. One sample measured twice but not matched.

C. Each individual in one sample is matched with an individual in the other sample to be equivalent.

D. A factorial design with crossing factors.

4. Levels are defined as...

A. The different groups or treatments or conditions.

B. The number of observations per group.

C. The scale of measurement.

D. The effect size categories.

5. Percentile rank is the same as which concept?

A. Mean.

B. Proportion.

C. Standard deviation.

D. Cumulative percentage.

6. In a within-subjects 2x3x4 factorial ANOVA, how many groups (cells) are formed?

A. 1, because it is WITHIN subjects

B. 8 groups

C. 12 groups

D. 24 groups

7. Which statement describes a one-tailed (directional) test?

A. Tests for a directional effect, increasing power by concentrating the critical region in one tail.

B. Tests for an effect in either direction regardless of direction.

C. A one-tailed test reduces the sample size required for a given power.

D. A one-tailed test uses a two-tailed p-value.

8. Why is the homogeneity of variance assumption not required for a related-samples t-test?

A. The test compares two independent groups with equal variances.

B. Variance across groups is irrelevant because the test ignores variance.

C. The test analyzes the difference scores within each pair, not two separate groups.

D. The test uses a nonparametric approach.

9. Which are the three types of Central Tendency?

A. Mean, Range, Variation

B. Mode, Median, Mean

C. Median, Variance, Standard Deviation

D. Mode, Mean, Range

10. What is the difference between linear and curvilinear regression?

A. Curvilinear fits a curved line

B. Linear fits a curved line

C. Linear fits a straight line

D. Curvilinear is non-parametric

Answers

1. A
2. A
3. C
4. A
5. D
6. A
7. A
8. C
9. B
10. C

Explanations

1. What is the problem with parametric statistic tests?

A. If you violated an assumption it can invalidate the test. They make judgments of parameters (population) based on statistics (samples).

B. They always provide exact p-values regardless of data.

C. They require no assumptions about the population distribution.

D. They are never affected by outliers.

Parametric tests hinge on assumptions about the population from which data come and use sample statistics to draw inferences about population parameters. When those assumptions are violated—such as the data not coming from the assumed distribution, variances not being equal, or observations not being independent—the test statistic and resulting p-values or confidence intervals can be biased or invalid. This is the core reason these tests have problems: their conclusions depend on those population assumptions holding true. Outliers can also distort means and variances, further skewing results. For contrast, the claim that they always yield exact p-values is not true; violations of assumptions or small samples can make p-values inaccurate. The idea that no assumptions about the population distribution are required is incorrect, as is the notion that parametric tests are never affected by outliers.

2. Which statistic is used to test hypotheses about an unknown population mean when the population standard deviation is unknown?

A. T-statistic

B. Z-statistic

C. Chi-square statistic

D. F-statistic

When you're testing a population mean but the population standard deviation is unknown, you rely on the t-statistic. Since you don't know the true spread, you estimate it with the sample standard deviation, s, and assess how far the sample mean is from the hypothesized mean in units of $s/\sqrt{n}$. This gives $t = (X - \mu 0) / (s/\sqrt{n})$, which follows a t distribution with $n-1$ degrees of freedom. The t distribution has heavier tails to reflect the extra uncertainty from estimating sigma, and as the sample size grows it looks more and more like the normal distribution. The Z statistic would be used only if the population standard deviation were known (or in very large samples where that knowledge effectively applies); chi-square and F statistics are used for variance-related tests or ANOVA, not for testing a single mean with unknown sigma.

3. In a matched-subjects design, what is the arrangement?

A. Two independent samples compared with a t-test.

B. One sample measured twice but not matched.

C. Each individual in one sample is matched with an individual in the other sample to be equivalent.

D. A factorial design with crossing factors.

In a matched-subjects design, subjects are paired so that each person in one group has a counterpart in the other group who is similar on relevant characteristics. This pairing makes the groups more comparable and allows you to compare outcomes within each pair, reducing extraneous variability and increasing statistical power. That arrangement—each individual in one sample matched with an individual in the other sample to be equivalent—is exactly what defines a matched-subjects design. For context, two independent samples with a t-test involve completely separate groups with no pairing; measuring one sample twice without matching reflects a repeated-measures or within-subjects design; and a factorial design with crossed factors involves multiple factors and their interactions rather than subject-by-subject matching.

4. Levels are defined as...

A. The different groups or treatments or conditions.

B. The number of observations per group.

C. The scale of measurement.

D. The effect size categories.

Levels are the distinct conditions or categories that a factor can take in a study. In an experiment, a factor is an independent variable with multiple possible values, and each value defines a separate group or treatment. For example, a factor like teaching method might have levels such as traditional lecture, interactive workshop, and online module. The number of levels tells you how many groups you'll compare. This is not about how many observations you collect per group, the scale of measurement, or how large the observed effects are.

5. Percentile rank is the same as which concept?

A. Mean.

B. Proportion.

C. Standard deviation.

D. Cumulative percentage.

Percentile rank tells you where a score sits relative to the rest of the distribution by indicating the percentage of observations at or below that score. That idea matches cumulative percentage, which is the running total of percentages up to a given point in an ordered distribution. So if a score is at the 80th percentile, 80% of scores are at or below it, which is the same as the cumulative percentage up to that value. This differs from the mean (the average), the standard deviation (how spread out the scores are), or a simple proportion (a part of the total not tied to order).

6. In a within-subjects 2x3x4 factorial ANOVA, how many groups (cells) are formed?

A. 1, because it is WITHIN subjects

B. 8 groups

C. 12 groups

D. 24 groups

In a factorial ANOVA, the number of cells equals the product of the levels of each factor. Here you have 2 levels for the first factor, 3 for the second, and 4 for the third. Multiply them: 2 × 3 × 4 = 24. In a within-subjects design, the same participants are measured in every cell, so there isn't 24 separate groups of different participants; there is one group of participants contributing data to all 24 conditions. The repeated measures affect error structure and power, not the number of cells. So there are 24 cells.

7. Which statement describes a one-tailed (directional) test?

A. Tests for a directional effect, increasing power by concentrating the critical region in one tail.

B. Tests for an effect in either direction regardless of direction.

C. A one-tailed test reduces the sample size required for a given power.

D. A one-tailed test uses a two-tailed p-value.

A directional (one-tailed) test focuses on detecting an effect in a specific direction. By placing the entire rejection region in a single tail of the distribution, you allocate all of your alpha to that direction. This makes it easier to reject the null when the true effect goes in that direction, increasing the test's power for detecting that specific outcome. For a fixed significance level, the boundary you must cross is less extreme in a one-tailed test than in a two-tailed test, so more of the distribution's mass lies beyond the cutoff in the chosen direction. The trade-off is that if the effect occurs in the opposite direction, the test has little or no power to detect it. This description matches a one-tailed test that concentrates the critical region in one tail to boost power for a directional effect.

8. Why is the homogeneity of variance assumption not required for a related-samples t-test?

A. The test compares two independent groups with equal variances.

B. Variance across groups is irrelevant because the test ignores variance.

C. The test analyzes the difference scores within each pair, not two separate groups.

D. The test uses a nonparametric approach.

In a related-samples (paired) t-test, the focus is on the difference within each pair. For every subject you compute a difference Δ = value before - value after, then test whether the average of these differences is zero. Since there's only one set of differences, there aren't two independent groups with their own variances to compare. The test statistic uses the standard deviation of the difference scores and the standard error of the mean difference, not a pooled variance across two separate groups. Thus, the homogeneity of variances assumption across groups isn't part of this test. What matters instead is that the distribution of the difference scores (or the sampling distribution of the mean difference) is approximately normal. If normality is a concern, nonparametric alternatives like the Wilcoxon signed-rank test can be used.

9. Which are the three types of Central Tendency?

A. Mean, Range, Variation

B. Mode, Median, Mean

C. Median, Variance, Standard Deviation

D. Mode, Mean, Range

Central tendency refers to a single value that represents the center of a distribution—the value data tend to cluster around. The three commonly used measures are the mean, the median, and the mode. The mean is the arithmetic average and reflects the overall level of the data but can be influenced by extreme values. The median is the middle value when the data are ordered and is robust to outliers. The mode is the value that occurs most often. The other terms in the options describe dispersion rather than center: range is how spread out the data are from the lowest to the highest value, while variance and standard deviation (and variation) describe how much the data vary around the center. For example, in data like 1, 2, 2, 3, 100, the mean is pulled toward 100, the median is 2, and the mode is 2, illustrating how these measures capture different aspects of the data's center.

10. What is the difference between linear and curvilinear regression?

A. Curvilinear fits a curved line

B. Linear fits a curved line

C. Linear fits a straight line

D. Curvilinear is non-parametric

The main idea is the shape of the relationship between the predictor and the outcome. Linear regression assumes a straight-line relationship, described by y = β0 + β1x, and finds the best-fitting straight line. Curvilinear regression, on the other hand, allows curvature in the relationship (for example, using x^2 terms or splines) to capture a bending pattern in the data. So the simplest, most direct way to state the difference is that linear regression fits a straight line, while curvilinear regression fits a curved line. Note that curvilinear models can be either parametric (like polynomials) or non-parametric (like splines), so the idea of non-parametric isn't inherently tied to curvilinear.

Next Steps

Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.

As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.

If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at hello@examzify.com.

Or visit your dedicated course page for more study tools and resources:

https://statsofbehavioralsciences.examzify.com

We wish you the very best on your exam journey. You've got this!