

RESEARCH IN EXPERIMENTAL PSYCHOLOGY

This test is an introduction to the basic principles of research methods used by experimental psychologists. Topics covered include: fundamentals of designing and executing experiments, analyzing and interpreting results, and writing research reports. (3 s.h.) PSY-322-TE

This is a two-hour examination in which you must answer 100 multiple-choice questions (worth 1 point each.). A passing score is **55** out of 100 questions.

You will not need to use a calculator.

Here are the topics covered and their approximate importance on the test:

- I. THE SCIENTIFIC METHOD (5%)
- II. RESEARCH ETHICS (5%)
- III. NONEXPERIMENTAL DESIGNS (10%)
- IV. CORRELATIONAL AND QUASI-EXPERIMENTAL DESIGNS (5%)
- V. FORMULATING HYPOTHESES (5%)
- VI. BASICS OF EXPERIMENTATION (5%)
- VII. CONTROLLING EXTRANEOUS VARIABLES (5%)
- VIII. BETWEEN-SUBJECTS DESIGNS (15%)
- IX. WITHIN-SUBJECTS DESIGNS (15%)
- X. INFERENCE, SIGNIFICANCE AND TEST STATISTICS (5%)
- XI. ANALYZING RESULTS (15%)
- XII. EVALUATING RESULTS AND DRAWING CONCLUSIONS (5%)
- XIII. WRITING THE RESEARCH REPORT (5%)

Textbook to help you prepare:

Myers, Anne and Christine Hansen. *Experimental Psychology*. Current edition. Belmont, CA: Wadsworth

In general, most college-level textbooks in this subject will provide adequate preparation for this test.

SAMPLE QUESTIONS

1. Data are empirical when they are
 - a. externally valid
 - b. internally valid
 - c. falsifiable
 - d. observable

2. What term refers to a researcher's responsibility to explain the nature and purpose of a study to subjects at the end of an experiment?
 - a. Confidentiality
 - b. Debriefing
 - c. Interrogation
 - d. Nondisclosure

3. Nonexperimental methods should be used when
 - a. an experiment would be unethical or impossible
 - b. external validity is less important than internal validity
 - c. the experimental hypothesis is not testable
 - d. a causal relationship must be established

4. A regression line
 - a. depicts a causal relationship between two variables
 - b. depicts the typical score in a sample
 - c. is a line of best fit on a scatterplot
 - d. is the vertical axis on a scatterplot

5. Which of the following is an analytic statement?
 - a. Dieters' weights will fluctuate.
 - b. My pet is a cat and not a cat.
 - c. Lucy is married and single.
 - d. Today is Sunday and Tuesday.

6. A researcher presents four levels of an independent variable. How many different treatment conditions are there?
 - a. 2
 - b. 3
 - c. 4
 - d. 6

7. Decreasing the sample size
 - a. increases confounding
 - b. decreases size effect
 - c. increases external validity
 - d. decreases statistical power

8. Jenny ran all treatment conditions at night, to control for the effect of time of day. She used the control technique of
- balancing
 - elimination
 - constancy of conditions
 - isolation of directions
9. How many main effects are possible in a 2 X 3 X 2 factorial design?
- 3
 - 6
 - 9
 - 12
10. Which of the following is NOT an advantage of using a factorial design?
- It is more efficient.
 - It tests for the presence of interactions.
 - It tests for the separate effects of each factor.
 - It uses fewer subjects.
11. Nick participated in an experiment in which he rated the taste of three different wines. What experimental design was used?
- Between-subjects
 - Independent groups
 - Within-subjects
 - Factorial
12. Which of the following is the most common technique used in research design?
- ABA*
 - Block randomization
 - Large *N*
 - Small *N*
13. In an *ABA* design, the first '*A*' refers to
- baseline behavior
 - a return to baseline behavior
 - the control group
 - the experimental condition
14. Psychologists generally reject the null hypothesis if the probability of obtaining a pattern of data by chance alone is less than
- .01
 - .05
 - .10
 - .15

15. When calculating a t statistic for independent groups, the numerator is the
- variances of the groups divided by the number of subjects
 - number of degrees of freedom
 - squared deviations from each treatment mean
 - difference between the treatment group means
16. When the computed F ratio is significant,
- each treatment mean is significantly different from every other treatment mean
 - there is a significant difference across the treatment means
 - each treatment mean is significantly different from the grand mean
 - MS_W is larger than MS_B
17. In a two-way ANOVA, between-groups variability includes all of the following EXCEPT variability associated with
- factor one
 - factor two
 - the interaction between the factors
 - the higher-order interactions
18. The appropriate distribution for chi square is based on
- the total number of subjects
 - the degrees of freedom
 - whether the null hypothesis was rejected or not
 - the numerator of the formula
19. Results that are externally valid meet two requirements: they are internally valid and they can be
- demonstrated
 - tested
 - replicated
 - manipulated
20. The overall purpose of the discussion section of a research report is to
- evaluate and interpret the experiment's results
 - explain how the research hypothesis was developed
 - briefly review prior research in the area
 - summarize the study

ANSWERS TO SAMPLE QUESTIONS

1. **d** 2. **b** 3. **a** 4. **c** 5. **a** 6. **c** 7. **d** 8. **c** 9. **a** 10. **d**
11. **c** 12. **c** 13. **a** 14. **b** 15. **d** 16. **b** 17. **d** 18. **b** 19. **c** 20. **a**