TEST ITEMS

Part I. Multiple-Choice & Fill in the Blank Questions (37 items)

1. When variables compete to explain the same effects, what are they sometimes called?
   a) contradictory
   b) intertwining
   c) confounding
   d) interdependent

2. Which of the following might be considered a level of an independent variable?
   a) hair color
   b) blue eyes
   c) party affiliation
   d) favorite type of M&M®

3. In a study of the effect of the amount TV viewing on children's aggressiveness, amount of TV viewing would be what type of variable?
   a) independent variable
   b) dependent variable
   c) control variable
   d) extraneous variable

4. In a study of the effect of pleasure reading on vocabulary level, the vocabulary level is considered what type of variable?
   a) independent variable
   b) dependent variable
   c) control variable
   d) extraneous variable

5. Factorial designs are experiments that can best be defined by which of these statements?
   a) have one independent variable
   b) have one dependent variable
   c) have more than one independent variable
   d) are tested on math problems

6. Which type of designs include more than one independent variable?
   a) exploring designs
   b) factorial designs
   c) confounding designs
   d) extraneous designs

7. What is another term for the independent variable?
   a) treatment variable
   b) dependent variable

c) control variable
d) factorial variable

8. How is the independent variable different from the dependent variable?
   a) the independent variable is manipulated during the experiment to understand the effects of this manipulation on the dependent variable
   b) the dependent variable is manipulated during the experiment to understand the effects of this manipulation on the independent variable
   c) dependent and independent variables are only used when researchers are not interested in looking at the effects of one thing on another, but only in how variables may be related
   d) the independent variable is a variable not included in the experiment, but is related to one of the variables in the experiment

9. A control variable can best be defined by which of the following statements?
   a) influences the independent variable
   b) has no observable effect
   c) cannot be removed or controlled
   d) influences the dependent variable

10. What type of variable has an unpredictable impact on the dependent variable?
   a) wild variable
   b) independent variable
   c) extraneous variable
   d) moderator variable

11. What type of variable masks the true relationship between the independent and dependent variables?
   a) extraneous variable
   b) moderator variable
   c) control variable
   d) neutral variable

12. The null hypothesis represents which of the following statements?
   a) no relationship between the variables under study
   b) a positive relationship between the independent and dependent variables
   c) a negative relationship between the independent and dependent variables
   d) a difference between the variables under study

13. Which type of study may NOT have an implied null hypothesis?
   a) correlational
   b) descriptive
   c) quasi-experimental
   d) experimental

14. Our job as researchers is to eliminate _____ as a factor contributing to differences between groups.

a) chance
b) change
c) hypothesis
d) average

15. Given no other information, chance is always the most likely explanation for differences between two groups.
a) True
b) False

16. Why is a null hypothesis said to be implied?
a) It's always directly tested.
b) It's never directly tested.
c) You do not need to test it to know that it is false.
d) It is stated in a question form.

17. What does a good research question usually pursue?
a) a small part of a broad topic
b) a topic unrelated to any other topics
c) the same thing as the null hypothesis
d) a broad topic

18. Which is the key criterion for selecting a dependent variable?
a) sensitivity of the variable to changes in the independent variable
b) measurement capabilities in the experiment
c) relationship of the dependent variable to the independent variable
d) preference of the researcher

19. Which of the following best describes independent variables?
a) not manipulated by the experimenter
b) manipulated to assess the effect of the treatment
c) unrelated to the treatment
d) not necessary

20. Sampling allows researchers to overcome the problem of which of the following?
a) overcrowded laboratories
b) biased subject response
c) not having access to the whole population
d) not having access to the proper statistical methods

21. The interpretation of "differences are significant" means that the differences found are_____.
    a) probably not due to chance
    b) due to chance
    c) creative outcomes
    d) not dictated by the hypothesis

22. If you read that a study's finding was significant at the $p < .05$ level, you could conclude that there is a less than 5% probability that _____.
    a) the results will translate to real world situations
    b) most researchers in that area would consider the finding to have clinical meaning
    c) the researchers used unreliable measures
    d) the results were due to chance

23. Why is it important to choose a representative sample of the population?
    a) increase statistical precision
    b) determine group differences
    c) maximize generalizability of results
    d) find significant results

24. There will be no relationship between children's time in day care and later academic achievement. This is an example of which of the following?
    a) a research hypothesis
    b) a factorial design
    c) a correlational hypothesis
    d) a null hypothesis

25. The best dependent variable is defined by which of the following characteristics?
    a) independent of any other variable in the same study
    b) sensitive to changes in the treatment
    c) can be manipulated by the researcher
    d) interacts with the independent variable

26. A research hypothesis _____.
    a) represents an equality
    b) is represented by Roman symbols
    c) is tested indirectly
    d) is implicit

27. The significance level reported in a research study can be explained by which of the following?
    a) importance of the results to the benefit of society
    b) statistical methods to determine the results of the study
    c) risk associated with not being 100% confident the difference is due to the treatment
    d) importance of the results to the benefit of an individual

28. Which of the following is another term for dependent variable?
    a) interacting variable
    b) predictor variable
    c) criterion variable
    d) restricting variable

29. Dr. Flemming found a statistically significant relationship between gender and aggressive playground activity. Dr. Flemming can conclude which of the following?
    a) The effect of gender on aggressive playground activity is likely due to chance.
    b) The relationship is probably coincidence.
    c) The effect of gender on aggressive playground activity is likely not due to chance.
    d) Gender causes aggressive playground activity.

30. What is the term often associated with the random variability introduced into every study as a function of the group of subjects participating, as well as many other unforeseen factors?
    a) systematic error
    b) non-normality
    c) biased sampling
    d) chance

31. A nondirectional research hypothesis is similar to a directional hypothesis in what way?
    a) both specify the direction of the difference between groups
    b) both reflect differences between groups
    c) both are non-specific regarding the direction of group differences
    d) both make no suggestion of group differences

32. The null hypothesis always refers to the _____, whereas the research hypothesis always refers to the _____.
    a) mean, standard deviation
    b) group differences, group similarities
    c) sample, population
    d) population, sample

33. Which of the following is an example of a null hypothesis?
    a) There is a relationship between the season of the year and a person's affect.
    b) H_o: $X_A \neq X_B$
    c) There is a difference in symptoms between Group A and Group B.
    d) H_o: $\mu_A = \mu_B$

34. Which of the following is a characteristic of a well-written research hypothesis?
    a) asks a pertinent question
    b) based on researcher's instinct
    c) should be long and detailed
    d) is testable

35. Research hypotheses are statements of inequality.
    c) True
    d) False

36. In testing whether riding a bicycle at least 30 minutes each day reduces weight, what would be the independent variable?
    a) the person's age
    b) amount of time bicycling each day
    c) the person's weight
    d) the person's diet

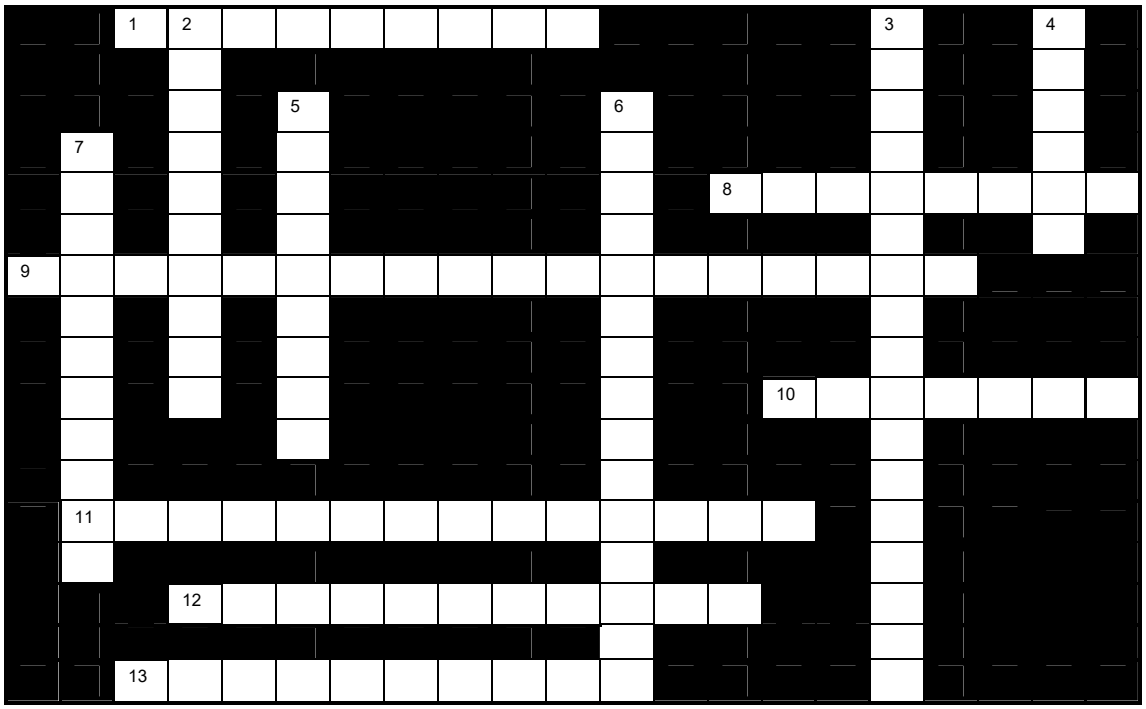
37. The researcher notices that the vocabulary level is also associated with intelligence level, so he determines that the research design must hold the level of intelligence constant to get a good idea of the relationship between pleasure reading and vocabulary level. Intelligence here is an example of what type of variable?
    a) moderator variable
    b) dependent variable
    c) control variable
    d) extraneous variable

Answers to Multiple-Choice Questions

1. c	13. b	25. b
2. b	14. a	26. b
3. a	15. a	27. c
4. b	16. b	28. c
5. c	17. a	29. c
6. b	18. a	30. d
7. a	19. b	31. b
8. a	20. c	32. d
9. d	21. a	33. d
10. c	22. d	34. d
11. b	23. c	35. a
12. a	24. d	36. b
		37. c

Part II. Short Answer Questions (10 items)

1. What is the difference between the dependent and independent variable?
2. What is the difference between a direct and indirect variable?
3. What are the purposes of the null hypothesis?
4. Give an example of both a null and research hypothesis.
5. List five differences between a null hypothesis and a research hypothesis.
6. What are the five signs of a complete and well-written hypothesis?
7. What is the difference between a directional and nondirectional research hypothesis?
8. Describe differences between the sample and the population.
9. Why is it important to select a sample that represents the population as closely as possible?
10. What is statistical significance?



ACROSS

1 Variable that represents the outcome measure of a research study
8 Noun representing a class of outcomes that can take more than one value
9 Definite statement of the relationship between two variables
10 Variable that has potential influence on the dependent variable
11 Statements of equality; representing no relationship between the variables
12 When variables compete to explain the effects
13 Larger group to whom you wish to generalize

DOWN

2 Variable with unpredictable impact on the dependent variable
3 Risk associated with not being 100 percent confident in observed findings
4 The smaller group selected from the population
5 Variable that masks the true relationship between the independent and dependent variables
6 Experimental designs that include more than one independent variable
7 Variable that researcher has direct or indirect control over in order to test the effects on a particular outcome

Note: See Appendix A for the Answer Key to Puzzle 2.

Key to Matching Questions

Question Number	Term	Sort Column	Key	Definition
1	Variable	r	1	A class of outcomes that can take on more than one value.
2	Measurement	f	2	Assignment of values to objects, events, or outcomes according to rules.
3	Dependent Variable	j	3	That which is examined as the outcome of an experiment or a research project.
4	Independent Variable	e	4	That which is manipulated or changed to examine its effect upon the dependent variable.
5	Control Variable	b	5	That which has a potential influence on the dependent variable and needs to be removed or controlled.
6	Extraneous Variable	o	6	A variable that is not related to the experiment but is related to the dependent variable or independent variable.
7	Moderator Variable	n	7	Related to the dependent variable or independent variable and has an impact on the dependent variable.
8	Treatment Variable	c	8	Independent Variable
9	Factorial Design	k	9	Experiments that include more than one independent variable.
10	Confounding	m	10	When variables compete to explain effects.
11	Null Hypothesis	i	11	A statement of equality about the variables studied, acting as a starting point and benchmark against which the actual outcomes of the study will be measured.
12	Chance	h	12	The unassuming explanation for differences between groups that implies that the differences are accounted for by variables other than those beng studied.
13	Research Hypothesis	l	13	A definite statement of the relationship between two variables.
14	Directional Research Hypothesis	p	14	Reflects a difference between groups, and the direction of the difference is specified.
15	Population	g	15	The entirety of some group.
16	Sample	d	16	A representative portion of a population.
17	Statistical Significance	q	17	A measure of how much risk we are willing to take when reaching a conclusion about the relationship between variables.
18	Significance Level	a	18	The risk associated with not being 100% confident that the difference is caused by what you think and may be due to some unforeseen factor.

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Chapter 2 Matching Questions: Using the terms below, fill in the blank next to each definition with the term that best matches that definition.

Question No.	Term	Definition
1		The risk associated with not being 100% confident that the difference is caused by what you think and may be due to some unforeseen factor.
2		That which has a potential influence on the dependent variable and needs to be removed or controlled.
3		Independent variable.
4		A representative portion of a population.
5		That which is manipulated or changed to examine its effect upon the dependent variable.
6		Assignment of values to objects, events, or outcomes according to rules.
7		The entirety of some group.
8		The unassuming explanation for differences between groups that implies that the differences are accounted for by variables other than those being studied.
9		A statement of equality about the variables studied, acting as a starting point and benchmark against which the actual outcomes of the study will be measured.
10		That which is examined as the outcome of an experiment or a research project.
11		Experiments that include more than one independent variable.
12		A definite statement of the relationship between two variables.
13		Related to the dependent variable or independent variable and has an impact on the dependent variable.
14		When variables compete to explain effects.
15		A variable that is not related to the experiment but is related to the dependent variable or independent variable.
16		Reflects a difference between groups, and the direction of the difference is specified.
17		A measure of how much risk we are willing to take when reaching a conclusion about the relationship between variables.
18		A class of outcomes that can take on more than one value.

Term
Variable
Measurement
Dependent Variable
Independent Variable
Control Variable
Extraneous Variable
Moderator Variable
Treatment Variable
Factorial Design
Confounding
Null Hypothesis
Chance
Research Hypothesis
Directional Research Hypothesis
Population

Sample
Statistical Significance
Significance Level