AP Stats
Chap 12 Handout #2

Name _____ Pd _____

Determine whether the report describes a prospective observational study, a retrospective observational study, or an experiment.

1. Among a group of married women who were tracked for ten years, those who worked full time were more likely to divorce than those who did not work full time. 1. _____
   A) Experiment
   B) Prospective observational study
   C) Retrospective observational study

2. A researcher wished to assess the importance of exercise in weight–loss programs. 412 people, all considered to be at least 20 pounds overweight, were randomly assigned to one of two groups. Over a two–month period, the first group followed a particular diet but were instructed to perform no exercise other than walking. The second group followed the same diet but also performed aerobic exercise for one hour each day. At the end of the two months, the weight loss of each participant was recorded. The average weight loss for the second group was greater than the average weight loss for the first group. 2. _____
   A) Experiment
   B) Prospective observational study
   C) Retrospective observational study

3. An examination of the medical records of 10, 000 women showed that those who were short and fair skinned had a higher risk of osteoperosis. 3. _____
   A) Prospective observational study
   B) Retrospective observational study
   C) Experiment

An observational study is described. Identify the specified element.

4. An educational researcher used school records to determine that in the year 2000 in one school district, 84% of children living in two–parent homes graduated high school while 75% of children living in single–parent homes graduated high school. Determine the parameter of interest. 4. _____
   A) High school graduation rate
   B) School district
   C) Type of home (single or two–parent)
   D) Percentage of children living in two–parent homes
   E) Year of high school graduation

5. In a group of 500 women, those who smoked moderately did worse on tests of reaction time than those who did not smoke. Identify the subjects studied. 5. _____
   A) Women who smoke moderately and women who do not smoke
   B) Women who do not smoke
   C) Women who smoke moderately
   D) Women
   E) Adults who smoke moderately and adults who do not smoke

6. Researchers reported that unmarried men are more likely to suffer from clinical depression than married men. These findings were based on the marriage histories of 700 Amercan men suffering from depression and 600 American men not suffering from depression. Determine the nature and scope of the conclusion the study can reach. 6. _____
   A) Since there is no random assignment, there is no way to know that being unmarried increases the risk of depression; there may have been confounding variables.
   B) For men, getting married will result in a decreased risk of depression.
   C) For American men, getting married will result in a decreased risk of depression.
   D) Since the study involved only men, there is no way to know that being unmarried increases the risk of depression.
   E) Since there is no random assignment, there is no way to know that being unmarried increases the risk of depression; there may have been lurking variables.

7. An examination of the medical records of 10, 000 women who died between 1990 and 2000 showed that those who had taken steroids had a higher risk of osteoperosis. Identify the subjects studied. 7. _____
   A) Women who died between 1990 and 2000
   B) Women who died between 1990 and 2000 and who had suffered from osteoperosis
   C) Women who died between 1990 and 2000 and who had taken steroids
   D) Women who suffered from osteoperosis
   E) Women who had taken steroids

8. Among a group of Canadian men who were tracked for ten years, those who had scored over 130 on intelligence tests were more likely to suffer severe depression than those who had scored below 130 on intelligence tests. Identify the subjects studied. 8. _____
   A) Canadian men who scored over 130 on intelligence tests
   B) Canadian men who scored over 130 on intelligence tests and who were suffering from depression
   C) Canadian men who did not score over 130 on intelligence tests
   D) Canadian men suffering from depression
   E) Canadian men

A designed experiment is described. Identify the specified element.

9. In a clinical trial, 780 participants suffering from high blood pressure were randomly assigned to one of three groups. Over a one–month period, the first group received a low dosage of an experimental drug, the second group received a high dosage of the drug, and the third group received a placebo. The diastolic blood pressure of each participant was measured at the beginning and at the end of the period and the change in blood pressure was recorded. Identify the levels of the factor. 9. _____
   A) Diastolic blood pressure at the start, diastolic blood pressure at the end
   B) The one–month period
   C) The experimental drug
   D) Placebo, low dosage, high dosage
   E) High blood pressure, low blood pressure

10. An education researcher was interested in examining the effect of the teaching method and the effect of the particular teacher on students' scores on a reading test. In a study, there are four different teachers (Juliana, Felix, Sonia, and Helen) and three different teaching methods (A, B, and C). The number of students participating in the study is 258. Students are randomly assigned to a teaching method and teacher. Those who studied wth Sonia using method B achieved the highest scores. Identify the response variable measured. 10. _____

A) Teacher
B) Teaching method
C) Method A, method B, method C
D) Score on reading test
E) The education researcher

11. 780 men suffering from high blood pressure were randomly assigned to one of two groups. Over a four–month period, the first group received an experimental drug and the second group received a placebo. A larger decrease in diastolic blood pressure was observed for those who received the drug. The experiment was double–blind. Determine the nature and scope of the conclusion the study can reach. 11. _____

A) Since the physicians evaluating the results could have been biased, no conclusion can be reached.
B) For men suffering from high blood pressure, the drug appears to lower diastolic blood pressure.
C) For adults suffering from high blood pressure, the drug appears to lower diastolic blood pressure.
D) Since there is no random assignment, there is no way to know that the drug caused the decrease in diastolic blood pressure; there could have been confounding variables.
E) Since the technicians administering the treatment could have been biased, no conclusion can be reached.

12. 780 participants suffering from depression were randomly assigned to one of three groups. Over a four–month period, the first group received a low dosage of an experimental drug, the second group received a high dosage of the drug, and the third group received a placebo. At the end of the period each participant rated their mood on a scale of 1–10. Identify the factor(s) in the experiment and the number of levels for each. 12. _____

A) Mood (10 levels)
B) The experimental drug (3 levels)
C) The dosage of the drug (3 levels)
D) Placebo, low dosage, high dosage (3 levels)
E) The experimental drug (3 levels), mood (10 levels)

13. 780 participants suffering from depression were randomly assigned to one of three groups. Over a four–month period, the first group received a low dosage of an experimental drug, the second group received a high dosage of the drug, and the third group received a placebo. At the end of the period each participant rated their mood on a scale of 1–5. Identify the treatments. 13. _____

A) The dosage of the drug
B) Placebo, low dosage, high dosage
C) The experimental drug
D) Mood level 1, mood level 2, mood level 3, mood level 4, mood level 5
E) The experimental drug, mood

Describe the design of the experiment (completely randomized or blocked).

14. In a clinical trial, 780 participants suffering from high blood pressure were randomly assigned to one of three groups. Over a one–month period, the first group received a low dosage of an experimental drug, the second group received a high dosage of the drug, and the third group received a placebo. The diastolic blood pressure of each participant was measured at the beginning and at the end of the period and the change in blood pressure was recorded. The biggest decrease in blood pressure was for those who received the low dosage of the drug. 14. _____
    A) Completely randomized over two factors (experimental drug, diastolic blood pressure)
    B) Completely randomized over one factor (diastolic blood pressure), blocked by experimental drug
    C) Completely randomized over one factor (experimental drug)
    D) Blocked by experimental drug, blocked by diastolic blood pressure
    E) Completely randomized over one factor (experimental drug), blocked by diastolic blood pressure

15. A researcher wants to investigate whether different forms of exercise can be used to help hyperactive children. A group of 90 children is divided into two groups according to age – those aged 9–12 and those aged 5–8. Within each age group the children are randomly assigned to one of three groups. The first group will just do their normal exercise. The second group will be given an additional exercise routine (moderate). The third group will be given an additional exercise routine (strenuous). At the end of a four month period parents will be asked to evaluate their children's progress. 15. _____
    A) Completely randomized over one factor (exercise)
    B) Completely randomized over one factor (age), blocked by exercise
    C) Completely randomized over two factors (exercise and age)
    D) Completely randomized over one factor (exercise), blocked by age
    E) Completely randomized over one factor (exercise), blocked by age and level of hyperactivity

Determine whether the experiment is single–blind, double–blind, or neither.

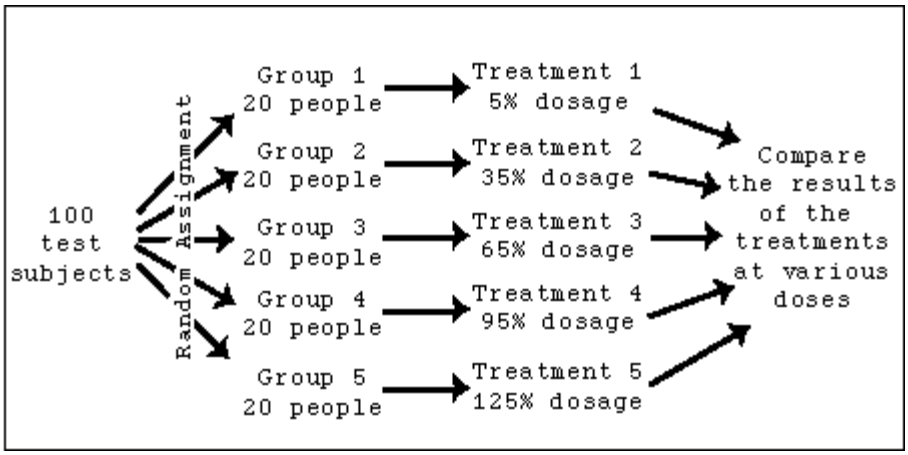
16. A researcher wants to investigate whether different forms of exercise can be used to help hyperactive children. A group of 90 children is divided into two groups according to age – those aged 9–12 and those aged 5–8. Within each age group the children are randomly assigned to one of three groups. The first group will just do their normal exercise. The second group will be given an additional exercise routine (moderate). The third group will be given an additional exercise routine (strenuous). At the end of a four month period parents will be asked to evaluate their children's progress. 16. _____
    A) Single–blind B) Double–blind C) Neither

17. Do Slimquick shakes reduce weight loss? Testers provide Slimquick shakes for participants in groups 1 and 5. Groups 2, 3, and 4 are provided with Stoutslow shakes. Results are evaluated by the group identifier, with no treatment information communicated. 17. _____
    A) Single–blind B) Double–blind C) Neither

18. Do energy snack bars improve afternoon alertness? 100 factory workers were ramdomly assigned to two groups. One group ate energy snack bars at lunch and the other group ate placebo snack bars. At the afternoon break (approximately 1–1/2 hour after lunch), a significant increase in alertness was observed. Later analysis of the experiment results showed 87% of the participants exhibitng increased alertness were from the group which ate energy snack bars. 18. _____
    A) Single–blind B) Double–blind C) Neither

Answer the question.

19. A pharmaceutical company will be testing a new "one–dosage fits all" medication for treating depression. The pharmaceutical company has 100 willing test subjects that will undergo a 30–day, double–blind experiment. The experiment uses the following diagram as a guide for administering the medication at various doses, from 5% to 125%. 19. _____



What is the most obvious factor missing from this proposed experiment?

A) Stratifying must be used.
B) A control group
C) A 100% dosage
D) Blocking must be used.
E) Nothing is missing. Basic variations have been accounted for.

Provide an appropriate response.

20. Can watching a movie temporarily raise your pulse rate? Researchers have 50 volunteers check their pulse rates. Then they watch an action film, after which they take check their pulse rates once more. Which aspect of experimentation is present in this research? 20. _____

A) blinding
B) a control group
C) randomization
D) a placebo
E) none of these

Answer Key
Testname: HANDOUT #2

1. B
2. A
3. B
4. A
5. A
6. E
7. A
8. E
9. D
10. D
11. B
12. B
13. B
14. C
15. D
16. C
17. A
18. B
19. B
20. E