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| Use Figure 2.1 and then answer the following question(s).  ​  Figure 2.1 |

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| 1. (Scenario 2.1) Figure 2.1 illustrates a \_\_\_\_\_ correlation between variables A and B.   |  |  |  | | --- | --- | --- | |  | a. | moderate positive | |  | b. | moderate negative | |  | c. | perfect positive | |  | d. | perfect negative |  |  |  | | --- | --- | | *ANSWER:* | b | |

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| 2. (Scenario 2.1) Which value is MOST likely to be the correlation coefficient (*r*) between variables A and B?   |  |  |  | | --- | --- | --- | |  | a. | –0.7 | |  | b. | –0.2 | |  | c. | +0.8 | |  | d. | –1.5 |  |  |  | | --- | --- | | *ANSWER:* | a | |

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| 3. (Scenario 2.1) Which pair is MOST likely to represent variables A and B?   |  |  |  | | --- | --- | --- | |  | a. | height and weight | |  | b. | depression level and anxiety level | |  | c. | intelligence quotient and income | |  | d. | absences in course and score on final exam |  |  |  | | --- | --- | | *ANSWER:* | d | |

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| 4. (Scenario 2.1) Each data point on the scatterplot represents:   |  |  |  | | --- | --- | --- | |  | a. | a single participant's score on variables A and B. | |  | b. | a single participant's score on variable B. | |  | c. | the score on variable B at the group mean of variable A. | |  | d. | the score on variable A at the group mean of variable B. |  |  |  | | --- | --- | | *ANSWER:* | a | |

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| 5. (Scenario 2.1) Which statement is true given that variables A and B are significantly correlated?   |  |  |  | | --- | --- | --- | |  | a. | Variable A causes variable B *or* variable B causes variable A. | |  | b. | Knowing the score on variable A allows for an estimate of the score on variable B. | |  | c. | There is no causal relationship between the two variables. | |  | d. | A third variable cannot be responsible for the observed association. |  |  |  | | --- | --- | | *ANSWER:* | b | |

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| 6. (Scenario 2.1) In a simple correlational design, how would these data be collected?   |  |  |  | | --- | --- | --- | |  | a. | measure each participant's score on variables A and B | |  | b. | randomly assign participants to experience either variable A or variable B | |  | c. | manipulate variable A and then observe its effects on variable B | |  | d. | manipulate both variables A and B and observe their effects on the target behaviour of interest |  |  |  | | --- | --- | | *ANSWER:* | a | |

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| Use Scenario 2.2 to answer the following question(s).  ​  A psychologist was interested in the effects of sleep deprivation on performance on a vigilance task. Forty university students served as participants and were placed in either the sleep-deprivation group or the control group by coin flip. Both groups spent the night before the study in a sleep laboratory, but only the control group was allowed to sleep. By the next morning, the sleep-deprived group had been awake for the past 24 hours. At this time, both groups were provided a nutritious breakfast and, shortly thereafter, testing began in sound-attenuating cubicles, each equipped with a computer. The vigilance task consisted of monitoring the computer screen. Participants were instructed that red dots represented allied spacecraft and green dots represented enemy spacecraft. Throughout the 2-hour-long task, red dots moved across the screen in irregular patterns. Occasionally and unpredictably, a green dot would quickly move across the screen in a haphazard pattern. When a green dot appeared, the task of the participant was to move a stylus over the green dot and press a button, "destroying" the enemy spacecraft. The psychologist measured the percentage of these enemy targets that were detected and destroyed.  ​  The results of this fictitious experiment are shown in Figure 2.2.  ​  Figure 2.2 |

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| 7. (Scenario 2.2) Vigilance was measured as the percentage of "enemy targets" destroyed. As a measure of vigilance, this illustrates:   |  |  |  | | --- | --- | --- | |  | a. | an operational definition. | |  | b. | reliability. | |  | c. | statistical significance. | |  | d. | a construct. |  |  |  | | --- | --- | | *ANSWER:* | a | |

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| 8. (Scenario 2.2) Shown in Figure 2.2 are the mean and standard deviation of each group's performance. Based only on this figure, what can be concluded?   |  |  |  | | --- | --- | --- | |  | a. | The difference in the sample means is not statistically significant. | |  | b. | The difference in the sample means is reliable. | |  | c. | On average, the sleep-deprived group performed about as well as the control group. | |  | d. | Participants in the sleep-deprived group behaved more variably than those in the control group. |  |  |  | | --- | --- | | *ANSWER:* | d | |

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| 9. (Scenario 2.2) The independent variable was:   |  |  |  | | --- | --- | --- | |  | a. | the length of the vigilance task. | |  | b. | the percentage of enemy targets destroyed. | |  | c. | the degree of vigilance. | |  | d. | sleep status. |  |  |  | | --- | --- | | *ANSWER:* | d | |

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| 10. (Scenario 2.2) The dependent variable was:   |  |  |  | | --- | --- | --- | |  | a. | the length of the vigilance task. | |  | b. | the instructions given. | |  | c. | the percentage of enemy targets destroyed. | |  | d. | sleep status. |  |  |  | | --- | --- | | *ANSWER:* | c | |

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| 11. (Scenario 2.2) Assuming the differences between groups were statistically significant, before concluding that sleep deprivation impairs vigilance, another dependent variable the researchers probably would want to analyze is:   |  |  |  | | --- | --- | --- | |  | a. | the effects of longer or shorter periods of sleep deprivation on vigilance. | |  | b. | the number of times participants incorrectly destroyed an allied spacecraft. | |  | c. | how well the task resembles real-world instances of sustained vigilance. | |  | d. | the effect of breakfast on performance on the vigilance task. |  |  |  | | --- | --- | | *ANSWER:* | b | |

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| 12. (Scenario 2.2) Participants were placed into groups using:   |  |  |  | | --- | --- | --- | |  | a. | random sampling. | |  | b. | random assignment. | |  | c. | a double-blind technique. | |  | d. | the matched groups technique. |  |  |  | | --- | --- | | *ANSWER:* | b | |

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| 13. (Scenario 2.2) The purpose of placing participants into one of the two groups by coin flip was to:   |  |  |  | | --- | --- | --- | |  | a. | eliminate the demand characteristics operating in the study. | |  | b. | increase the external validity of the study. | |  | c. | help ensure that the two groups were equal on all possible third variables. | |  | d. | minimize experimenter bias. |  |  |  | | --- | --- | | *ANSWER:* | c | |

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| Use Scenario 2.3 to answer the question(s) below. The scenario is based on the following study:  ​  Müller, K., & Schwarz, C. (2018, Nov.). Fanning the flames of hate: Social media and hate crime. https://ssrn.com/abstract=3082972 or http://dx.doi.org/10.2139/ssrn.3082972  ​  Müller and Schwarz (2018) measured the frequency of anti-refugee Facebook posts on a right-wing, anti-immigrant German Facebook page and the frequency of hate crimes against refugees. The study was conducted in Germany over a 2-year period.  ​  Major findings of Müller and Schwarz (2018) are presented in Figure 2.3.  ​  Figure 2.3 |

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| 14. (Scenario 2.3) Figure 2.3 illustrates a \_\_\_\_\_ correlation between anti-refugee posts and anti-refugee incidents.   |  |  |  | | --- | --- | --- | |  | a. | moderate positive | |  | b. | moderate negative | |  | c. | perfect positive | |  | d. | perfect negative |  |  |  | | --- | --- | | *ANSWER:* | a | |

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| 15. (Scenario 2.3) Based only on the data in Figure 2.3, which is the most appropriate conclusion?   |  |  |  | | --- | --- | --- | |  | a. | Hate crimes against refugees are positively associated with hate posts on Facebook. | |  | b. | Increased hate posts about refugees on Facebook cause violent crimes against refugees. | |  | c. | Violent crimes against refugees tend to spark a flurry of hate posts on Facebook. | |  | d. | A third variable, such as an economic downturn, causes both anti-immigrant posts on Facebook and crimes against refugees. |  |  |  | | --- | --- | | *ANSWER:* | a | |

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| 16. (Scenario 2.3) Suppose that a researcher wanted to further analyze these data by comparing the average number of anti-refugee posts made in 2015 with the average number of anti-refugee posts made in 2016. This researcher would begin by:   |  |  |  | | --- | --- | --- | |  | a. | disregarding data that are clearly not typical of average performance, such as the data from week 1 in 2016. | |  | b. | calculating an inferential statistic to determine if anti-refugee posts significantly increased during times of anti-refugee incidents for each year separately. | |  | c. | obtaining a measure of central tendency for anti-refugee posts in both 2015 and 2016. | |  | d. | calculating the normal amount of variability to be expected in anti-refugee posts when anti-refugee incidents occur. |  |  |  | | --- | --- | | *ANSWER:* | c | |

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| 17. (Scenario 2.3) Because Internet access is often unreliable in Germany, Müller and Schwarz (2018) also examined anti-refugee incidents as a function of whether the Internet was on or off. This constitutes a natural:   |  |  |  | | --- | --- | --- | |  | a. | check of external validity. | |  | b. | self-selection of participants to groups. | |  | c. | control for a possible third variable. | |  | d. | manipulation of an independent variable. |  |  |  | | --- | --- | | *ANSWER:* | d | |

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| 18. (Scenario 2.3) Because Internet access is often unreliable in Germany, Müller and Schwarz (2018) also examined anti-refugee incidents as a function of whether the Internet was on or off. They found that anti-refugee incidents decreased during Internet service interruptions. Because these service interruptions were essentially random, the authors could reasonably conclude that:   |  |  |  | | --- | --- | --- | |  | a. | crimes against refugees are one cause of spikes in hate speech on social media. | |  | b. | hate speech on social media plays a causal role in crimes against refugees. | |  | c. | the third variable of Internet access was responsible for the apparent correlation between anti-refugee posts and anti-refugee incidents. | |  | d. | the results of the research are generalizable to other cultures. |  |  |  | | --- | --- | | *ANSWER:* | b | |

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| 19. (Scenario 2.3) The authors of this study would have to contend with all of these issues EXCEPT:   |  |  |  | | --- | --- | --- | |  | a. | developing a reliable and valid operational definition of an anti-refugee Facebook post. | |  | b. | determining if the results of the study are replicable. | |  | c. | controlling for participant reactivity that could bias the results. | |  | d. | determining if the results of the study have external validity. |  |  |  | | --- | --- | | *ANSWER:* | c | |