|  |  |  |
| --- | --- | --- |
| 1. Historically, drug addiction has been considered a moral failing. Contrast how a dogmatist and an empiricist might react to new evidence that drug addiction is a brain disease.   |  |  | | --- | --- | | *ANSWER:* | The answer should indicate that dogmatists often acquire knowledge from authority and then are reluctant to change their beliefs, even if the evidence does not support them. Dogmatists who believe that drug addiction is caused by a person's free will might consider addicts morally weak and not be swayed by data suggesting genetic predispositions, brain changes associated with drug use, and so on. Empiricists who believe that drug addicts are morally weak; however, they might change their opinion on the issue when confronted with these data. Empiricists base their knowledge on observations of the world, and may change their opinions when confronted with new data. | |

|  |  |  |
| --- | --- | --- |
| 2. A psychologist theorizes that depression is caused by low levels of the neurotransmitter serotonin in the brain. Generate a hypothesis based on this theory.   |  |  | | --- | --- | | *ANSWER:* | The answer should indicate that one hypothesis is that drugs that increase serotonin in the brain should alleviate symptoms of depression. Another hypothesis is that drugs that deplete serotonin levels should exacerbate symptoms of depression. | |

|  |  |  |
| --- | --- | --- |
| 3. Although psychologists and chemists both use the scientific method, discuss three reasons the subject matter of psychology is much more difficult to study than the subject matter of chemistry.   |  |  | | --- | --- | | *ANSWER:* | The answer should provide the following information: (1) Complexity: The human brain may be the most complex system in the universe. When two chemicals react, we have precise equations that will accurately predict the outcome. Judging from the proliferation of online dating sites, we aren't that good at predicting what will happen when two people meet! (2) Variability: No two people are the same. Just because a psychologist learns something about person A does not necessarily mean that it will be applicable to person B. By comparison, all the atoms of gold on the planet are identical. (3) Reactivity: People behave differently when they know that they are being observed. A chemical reaction will proceed in the same way, regardless of who is watching it! | |

|  |  |  |
| --- | --- | --- |
| 4. Develop an operational definition that could be used to measure generosity. Discuss the construct validity and reliability of your measure.   |  |  | | --- | --- | | *ANSWER:* | The answer should provide the following: (1) a definition of the construct in terms of its measure. For example, generosity may be measured by the amount of money someone gives away each year. (2) Construct validity refers to the extent to which a measurement and a property are conceptually related. A valid measure is one that measures what it claims to measure; in other words, the operational definition of a property must overlap with the conceptual definition of that property. A researcher using invalid measures is claiming to measure one thing but is instead measuring something else. An invalid measure here may be something like "score on an IQ test." (2) Reliability refers to the consistency of a measurement. A reliable measure gives the same kind of results each time it is used. For this answer consider whether the proposed definition of generosity would necessarily remain constant over time or whether something about that definition would change as the subject repeated the experiment. A researcher using unreliable measures has no basis for knowing that the measurements taken reflect aspects of the property to be measured. | |

|  |  |  |
| --- | --- | --- |
| 5. Generate your own example of a measure that is reliable but does not have construct validity and a measure that is neither reliable nor has construct validity.   |  |  | | --- | --- | | *ANSWER:* | The answer should provide the following information: (1) For example, defining intelligence in terms of how long someone can hold his or her hand in a bucket of ice, measured precisely with a stopwatch. The key is that the measure might produce similar results each time, but it does not conceptually relate to the construct. (2) For example, defining intelligence in terms of the combined score obtained from rolling 20 dice. Not only is the measure not conceptually related to the construct of intelligence (no validity), but the results will change considerably each time the measurement is taken, thus demonstrating a lack of reliability. | |

|  |  |  |
| --- | --- | --- |
| 6. What are demand characteristics? Give at least three examples of how to control demand characteristics.   |  |  | | --- | --- | | *ANSWER:* | The answer should indicate that demand characteristics are aspects of an observational setting that cause people to behave as they think an observer wants or expects them to behave. Examples of how to control demand characteristics: (1) Observe participants in their natural environment unobtrusively. If people do not know that they are being observed, they will behave normally. (2) Ensure participant anonymity. (3) Do not reveal the true purpose of the study until after the study has been completed. (4) Measure behaviour that is not susceptible to demand characteristics, such as reflexes. (5) Use a double-blind observation or measurement to eliminate the effects of researchers' expectations. | |

|  |  |  |
| --- | --- | --- |
| 7. Explain the difference between a population and a sample. Then discuss the relationship between random sampling and generalizing findings from the sample to the population.   |  |  | | --- | --- | | *ANSWER:* | The answer should provide the following information: (1) A population refers to all members of a group who potentially could be measured. All students currently enrolled at your school would be a population. All residents of your city in 1900 would also be a population. All girls who, in January 2008, were between the ages of 13 and 17, had blonde hair, and were taller than 1.6 metres would also be a population. (2) A sample is a smaller group drawn from a larger population. If the sample is randomly drawn from the population, and large enough, it will resemble the population on all variables. Therefore, psychologists can generalize their results to the population when they study a random sample. | |

|  |  |  |
| --- | --- | --- |
| 8. Describe and give an example of the third-variable problem. What can be done to solve this problem?   |  |  | | --- | --- | | *ANSWER:* | The answer should indicate that the third-variable problem is the fact that two variables may be correlated only because they are both caused by a third variable. The third-variable problem is encountered often in observations of natural correlations. Because of the third-variable problem, two variables being correlated does not necessarily mean that one is causing the other to occur. An example of the third-variable problem involves the correlation between watching violent television programming and childhood aggression. From this correlation alone, we cannot say that watching violent television programming causes aggression. It may be that a third variable—for example, lack of parental supervision—causes both television viewing and aggression. The third-variable problem always exists in correlation studies; no matter how much we control for relevant third variables, another always exists. To avoid the third-variable problem, carefully designed experiments involve manipulation and random assignment. | |

|  |  |  |
| --- | --- | --- |
| 9. A true experiment is defined as having certain characteristics. Deconstruct an experiment into its two essential characteristics, and note how each helps to achieve the overall goal of internal validity.   |  |  | | --- | --- | | *ANSWER:* | The answer should provide the following information: (1) An experiment must include manipulation and random assignment. (2) Manipulation, controlled by the experimenter, means changing the pattern of variation to which the participants are exposed. Rather than observing natural correlations, the experimenter makes systematic changes in the levels of a property. The property thus manipulated is called an independent variable. For example, an experimenter might expose members of one group (the experimental group) to an aversive noise as they try to complete anagrams and members of the other group (the control group) to silence while they complete the same task. The variation—silence to noise—was controlled, produced, and manipulated by the experimenter. (3) Random assignment means that participants are assigned to either the experimental or control group by chance. This has the effect of reducing the possibility that any third variables "lump up" in either group and thereby offer a compelling alternative explanation for the findings. By making sure, through random assignment, that both groups have roughly the same amount of smart, motivated, dumb, attention-paying, tall, hefty, short, myopic, claustrophobic, sensation-seeking, aggressive, retiring, bald, female, male, and so on participants, there's less chance that any of those unwanted attributes can act as a third variable. (4) Both manipulation and random assignment contribute to internal validity. By manipulating the independent variable, the researcher knows that it is the only thing that systematically differs between the groups. By randomly assigning participants to conditions, no other pre-existing differences should be able to cause differences in the dependent variable. | |

|  |  |  |
| --- | --- | --- |
| 10. Self-help guru, Louise Hay, claims that her self-help DVDs can cure cancer. Describe how you would design an experiment to test this claim. To get you started, suppose that the participants in the experiment are individuals recently diagnosed with cancer who have provided informed consent to participate in a study investigating the power of positive thinking. From here, describe how you would use random assignment and manipulation to test Hay's claim. Be sure to identify the independent and dependent variables.   |  |  | | --- | --- | | *ANSWER:* | The answer should indicate that the participants with cancer are randomly assigned to one of two groups. Participants in one group watch the self-help DVDs every day. Participants in the other group watch a DVD of similar duration but without Hay's message (placebo). The independent variable is the type of DVD watched (self-help or placebo). The experiment might last 6 months, and the dependent variable is the number of cases in which the cancer goes into remission. If Hay's claims are correct, participants who receive the self-help DVDs should show a higher rate of remission. | |

|  |  |  |
| --- | --- | --- |
| 11. In the context of experimentation, describe how internal and external validity are established.   |  |  | | --- | --- | | *ANSWER:* | The answer should provide the following information: (1) Internal validity: characteristic of an experiment that allows us to draw accurate inferences about the causal relationship between an independent and a dependent variable. Rules of validity for an internally valid experiment: An independent variable has been effectively manipulated. Participants have been randomly assigned to the control and experimental groups. A dependent variable has been measured in an unbiased way, with a valid and reliable measure. A correlation has been observed between the pattern of variation created in the independent variable and the pattern of variation measured in the dependent variable. (2) If an experiment has been conducted properly (as described above), then we can be confident that the observed changes in the dependent variable were caused by our manipulating of the independent variable. (3) External validity: characteristic of an experiment in which the independent variables are operationally defined in a normal, typical, or realistic way. For example, if we operationally define violent television programming and childhood aggression in realistic ways, then we can feel somewhat confident in generalizing the results of our study to similar children watching similar television shows. | |

|  |  |  |
| --- | --- | --- |
| 12. Describe Type I and Type II errors. How do psychologists avoid these errors?   |  |  | | --- | --- | | *ANSWER:* | The answer should include the following: (1) Type 1 errors occur when researchers conclude that there is a relationship between two variables when in fact there is not. (2) Type II errors occur when researchers conclude that there is a not a relationship between two variables when in fact there is. (3) Psychologists cannot avoid these errors, but they do attempt to minimize the risk of whichever error seems worse in a particular situation. | |

|  |  |  |
| --- | --- | --- |
| 13. According to Sir Francis Bacon, what two human tendencies interfere with our ability to think critically? Provide examples of each.   |  |  | | --- | --- | | *ANSWER:* | The answer should indicate that, according to Bacon, humans have the tendency to see what they expect or want to see and usually fail to consider what they cannot see. (1) Expectancies can alter our perceptions. Consider an example where participants watch a video of a young girl reading aloud. If the participants were first told that the girl came from an affluent family, they rated her reading ability higher than if told she came from a family of lower socioeconomic status. (2) Biases can alter our perceptions. For example, when you watch a political debate, you rarely note the mistakes of your favourite leader but are quick to point out those of other leaders. (3) Our beliefs and expectations also affect the sources of information at our disposal. We tend to expose ourselves only to information that is already consistent with our beliefs. For example, we tend to consume news that is produced by media outlets that most align with our own beliefs. (4) In making decisions, people often fail to consider that the most important piece of information might be the one that is absent. For example, suppose a burglary has been committed. Amateur law enforcement officers might focus all of their attention on scouring the crime scene and gathering physical evidence. An experienced law enforcement official would also consider that which is missing, asking questions such as "Why are there no signs of forced entry?" and "Why didn't the dog bark?" | |

|  |  |  |
| --- | --- | --- |
| 14. List at least three rules of ethics that psychologists must follow to maintain the safety, well-being, and dignity of their participants.   |  |  | | --- | --- | | *ANSWER:* | The answer should discuss three of the following concepts: informed consent, freedom from coercion, protection from harm, risk–benefit analysis, deception, debriefing, and confidentiality. (1) Informed consent: a written agreement to participate in a study made by a person who has been informed of all the risks of participation. (2) Freedom from coercion: Researchers cannot force people to participate unwillingly in an experiment. (3) Protection from harm: Psychologists will use the safest method possible. (4) Risk–benefit analysis: Participants may not be asked to accept large risks. (5) Deception can be used only if adequately justified, no alternative is available, and the act of deception will not increase risk to participants. (6) Debriefing: a verbal description of the true nature and purpose of a study that psychologists provide to people after they have participated in the study. (7) Confidentiality: Private and personal data obtained during a study should be kept confidential. | |