Term 1 Review Questions

Short Answer

1. Julie, a physics major, has difficulty believing that psychology is a science, because people cannot observe other people's thoughts and sensations. Explain how Wilhelm Wundt and John Watson would have responded to Julie's skepticism regarding psychology's scientific status.

2. Design an experiment to test whether alcohol consumption influences people's tendency to become socially aggressive. In your experimental design, identify the following experimental elements and procedures: hypothesis, random sampling, random assignment, experimental group, control group, independent variable, dependent variable, ethics in research.
3. Briefly describe how one neuron transmits an impulse to another neuron using the following terms correctly to describe the process of neural transmission: Axon, action potential, terminal branches of axon, neurotransmitter, synapse, receptor site, dendrite.

4. Briefly describe the kinds of information each of the following scans provides about the brain: EEG, CT, PET, MRI, fMRI.

5. Briefly describe the genetic differences between identical and fraternal twins, and explain why behavior geneticists are interested in studying twins to investigate nature-nurture issues.
6. Use the following terms to explain an example of visual perception: sensation, retina, absolute threshold, transduce, top-down processing, feature detector.

7. Franco studied all evening for a chemistry test scheduled the following morning. That night he dreamt that he accurately copied a female classmate's correct answers to the test questions as they unexpectedly flashed before his eyes. Compare and contrast explanations of Franco's dream that might be provided by Freudian, memory consolidation, and activation-synthesis theories. In what sense is the dream a reflection of Franco's level of cognitive development?
8. How would you classically condition a preschool child who is afraid of dogs to enjoy playing with a neighbor's friendly dog? Be sure to identify the US, CS, UR, and CR in your answer.

9. Explain where explicit and implicit memories are stored in the brain, and the possible implications of these locations for amnesia victims.

10. Describe how you might solve the following problem: You forget your email password and you can't remember the answer to the security question you need to retrieve it. What would be the advantages and disadvantages of using an algorithm or a heuristic to solve this problem?
11. Briefly discuss the similarities and differences between instinct theory and drive-reduction theory.

12. What advice would a health psychologist give to a student about the stress of an AP exam? What are the potential benefits of this stressor, and what are the possible disadvantages of long-term stress?
Term 1 Review Questions
Answer Section

SHORT ANSWER

1. ANS:
   Student responses should explain that both Wundt and Watson would disagree with Julie's claim that psychology could not be a science. Student answers should in some way acknowledge Wundt's use of the experimental method and Watson's emphasis on observable behaviors.

   PTS: 1  REF: Section - Psychology's History and Approaches
   MSC: Conceptual | Application

2. ANS:
   Students should design an experiment in which the hypothesis identifies alcohol as the independent variable and social aggression as the dependent variable. Students should also distinguish the experimental group (the group that consumes alcohol) from the control group (the group that does not consume alcohol and/or consumes a placebo). Finally, students should include at least one detail about complying with ethical guidelines from the research with human participants.

   PTS: 1  REF: Section - Research Methods: Thinking Critically With Psychological Science
   MSC: Conceptual | Application

3. ANS:
   Students should explain the neural transmission process using the terms in context: Signals are received by the neuron's dendrites or cell body. An action potential is transmitted down the axon, stimulating the terminal branches of the axon to release neurotransmitters into the synapse, which bind with receptor sites on the dendrites of the next neuron.

   PTS: 1  REF: Section - Biological Bases of Behavior: 3A—Neural Processing and the Endocrine System
   MSC: Conceptual | Application

4. ANS:
   Students should describe the basic function of each kind of scan: EEG measures brain waves, CT scan shows the structure of the brain, PET scan shows the activity levels in brain areas, MRI scan shows the structure of the brain, fMRI scan shows the structure of the brain and activity levels of different areas.

   PTS: 1  REF: Section - Biological Bases of Behavior: 3B—The Brain
   MSC: Conceptual | Application

5. ANS:
   Students should explain that identical twins have the same genetic code because they developed from one fertilized egg; fraternal twins share about half their genetic code because they developed from two fertilized eggs. Behavior geneticists study both kinds of twins to learn the relative influence of genetics on specific traits.

   PTS: 1  REF: Section - Biological Bases of Behavior: 3C—Genetics-Evolutionary Psychology-and Behavior
6. **ANS:**
Students should provide an example of visual perception and explain each term in its context: the light is reflected off the object entering our eye (sensation), passes through our eye and is reflected on the retina, the light energy is strong enough to be perceived (absolute threshold), the light energy is changed into neural impulses (transduce), our brain interprets the neural impulses as a specific visual image based on our past experiences (top-down processing), the neural impulses are interpreted by feature detectors in the visual cortex.

**PTS:** 1  
**REF:** Section- Sensation and Perception  
**MSC:** Conceptual | Application

7. **ANS:**
Students should explain possible interpretations of Franco's dream: A Freudian interpretation would involve identifying symbols in the manifest content of the dream (the apparent dream content) and what those symbols indicate about unconscious wishes and anxieties (the latent content). A memory consolidation (or information-processing) interpretation would explain that the dream most likely occurred during REM sleep, and that REM sleep is associated with encoding memories. Activation-synthesis theory explains that dreams are the brain's attempt to make sense of random neural activity and do not “symbolize” anything about Franco's psychological state.

**PTS:** 1  
**REF:** Section- States of Consciousness  
**MSC:** Conceptual | Application

8. **ANS:**
Students should describe a plausible classical conditioning scenario that results in the CR of the child enjoying playing with the dog. Several unconditioned stimuli are possible. The conditioned stimulus will be the dog. For example, the child could be given a new toy (US) that would cause him to enjoy playing (UR). The dog could be introduced (CS) each time the child gets a new toy (US). After repeated pairings, the dog (CS) should elicit the CR (enjoying playing).

**PTS:** 1  
**REF:** Section- Learning  
**MSC:** Conceptual | Application

9. **ANS:**
Students should identify that the hippocampus is primarily responsible for explicit memories and the cerebellum is primarily responsible for implicit memories. This means that amnesia victims with damage to one area of the brain may still retain the other type of memory (e.g., someone with cerebellum damage may still retain explicit memories).

**PTS:** 1  
**REF:** Section- Cognition: 7A—Memory  
**MSC:** Conceptual | Application

10. **ANS:**
Students should point out that using an algorithm (a step-by-step procedure) to solve the problem would guarantee the correct answer but may not be practical because it would take far too long to enter every possible password or answer to the security question. It may be more practical to use a heuristic (a simpler thinking strategy) and guess at common passwords the student often uses or possible answers to the security question, but heuristics do not guarantee the correct answer.

**PTS:** 1  
**REF:** Section- Cognition: 7B—Thinking-Problem Solving-Creativity-and Language  
**MSC:** Conceptual | Application
Students should discuss the claims of instinct theory that our behaviors are motivated by unlearned, fixed, inborn patterns that last throughout our lives. Drive-reduction theory is similar in that it also focuses on inborn, biological needs and how we respond to them. But, unlike instinct theory, drive-reduction theory focuses on how organisms are motivated to reduce the needs created by drives in order to return to a state of homeostasis.

PTS: 1  REF: Section- Motivation and Emotion: 8A—Motivation
MSC: Conceptual | Application

12. ANS:
Students could choose to discuss several different areas of advice a health psychologist might give a student dealing with the stress caused by the AP exam. Examples include: If students see the test as a challenge rather than a threat, the arousal of the test can cause increased focus on the exam. The stress from the exam can cause students to move into the resistance phase of the general adaptation syndrome, during which the increased respiration, hormonal levels, and such could either help or hurt student performance on the exam. Students could also discuss possible long-term disadvantages of stress, such as heart disease, although the temporary stress of the exam is unlikely to lead to health problems, especially at their age.

PTS: 1  REF: Section- Motivation and Emotion: 8B—Emotions-Stress-and Health
MSC: Conceptual | Application