

*Depressants* slow down the same body systems that stimulants speed up. Alcohol, barbiturates, and anxiolytics (also called tranquilizers or antianxiety drugs) like Valium are common depressants. Obviously, alcohol is by far the most commonly used depressant and psychoactive drug. A euphoria accompanies the depressing effects of depressants, as does tolerance and withdrawal symptoms. In addition, alcohol slows down our reactions and judgment by slowing down brain processes. The inhibition of different brain regions causes behavioral changes. For example, when enough alcohol is ingested to affect the cerebellum, our motor coordination is dramatically affected, eventually making it difficult or impossible for the user to even stand. Because it is so widespread, more research has been done on alcohol than on any other psychoactive drug.

**HINT**

Alcohol is categorized as a depressant because of its effect on our nervous system, even though some people report feeling more energized after ingesting a small amount of alcohol. This energizing effect is due to expectations about alcohol and because alcohol lowers inhibitions. Similarly, nicotine is a stimulant because it speeds up our nervous system, but some smokers smoke to relax.

*Hallucinogens* (also sometimes called *psychedelics*) do not necessarily speed up or slow down the body. These drugs cause changes in perceptions of reality, including sensory hallucinations, loss of identity, and vivid fantasies. Common hallucinogens include LSD, peyote, psilocybin mushrooms, and marijuana. One notable feature of hallucinogens is their persistence. Some amount of these drugs may remain in the body for weeks. If an individual ingests the hallucinogen again during this time period, the new dose of the chemical is added to the lingering amount, creating more profound and potentially dangerous effects. This effect is sometimes called *reverse tolerance* because the second dose may be less than the first but cause the same or greater effects. Effects of hallucinogens are less predictable than those of stimulants or depressants.

*Opiates* such as morphine, heroin, methadone, and codeine are all similar in chemical structure to opium, a drug derived from the poppy plant. The opiates all act as agonists for endorphins and thus are powerful painkillers and mood elevators. Opiates cause drowsiness and a euphoria associated with elevated endorphin levels. The opiates are some of the most physically addictive drugs because they rapidly change brain chemistry and create tolerance and withdrawal symptoms.

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## Practice Questions

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**Directions:** Each of the questions or incomplete statements below is followed by five suggested answers or completions. Select the one that is best in each case.

- Agonists are psychoactive drugs that
  - produce tolerance to the drug without the associated withdrawal symptoms.
  - mimic and produce the same effect as certain neurotransmitters.
  - mimic neurotransmitters and block their receptor sites.
  - enhance the effects of certain opiates like heroin.
  - make recovery from physical addiction more difficult.

2. In comparison with older people, babies
  - (A) sleep more fitfully; they tend to wake up more often.
  - (B) sleep more deeply; they spend more time in stage 3 and 4 sleep.
  - (C) spend more time in the REM stage than other sleep stages.
  - (D) spend more time in stage 1, which causes them to awaken easily.
  - (E) sleep more than young adults but less than people over 50.
  
3. Which of the following is the best analogy for how psychologists view consciousness?
  - (A) The on/off switch on a computer.
  - (B) A circuit breaker that controls power to a house.
  - (C) A fuse that allows electricity to pass through until a short circuit occurs.
  - (D) A dimmer switch for a light fixture.
  - (E) The ignition switch on a car.
  
4. During a normal night's sleep, how many times do we pass through the different stages of sleep?
  - (A) 2
  - (B) 2–3
  - (C) 4–7
  - (D) 8–11
  - (E) 11–15
  
5. Which of the following is evidence supporting the role theory of hypnosis?
  - (A) People with rich fantasy lives are more hypnotizable.
  - (B) People will not behave under hypnosis in ways they would not without hypnosis.
  - (C) Hilgard's experiment demonstrated the presence of a hidden observer.
  - (D) Our heart and respiration rates may differ while under hypnosis.
  - (E) Some therapists successfully use hypnosis in therapy.
  
6. Activation-synthesis theory tries to explain
  - (A) how consciousness emerges out of neural firings.
  - (B) how psychoactive drugs create euphoric effects.
  - (C) the origin and function of dreams.
  - (D) how our mind awakens us after we pass through all the sleep stages.
  - (E) how our consciousness synthesizes all the sensory information it receives.

7. Hilgard's experiment that demonstrated the presence of a hidden observer is evidence for which theory?
- (A) role theory of hypnosis
  - (B) levels theory of consciousness
  - (C) recuperative theory of sleep
  - (D) dissociation theory of hypnosis
  - (E) state theory of hypnosis
8. Which of the following two sleep disorders occur most commonly?
- (A) insomnia and narcolepsy
  - (B) apnea and narcolepsy
  - (C) night terrors and apnea
  - (D) somnambulism and insomnia
  - (E) apnea and insomnia
9. Marijuana falls under what category of psychoactive drug?
- (A) depressant
  - (B) mood elevator
  - (C) hallucinogen
  - (D) stimulant
  - (E) mood depressant
10. Night terrors and somnambulism usually occur during which stage of sleep?
- (A) stage 1, close to wakefulness
  - (B) REM sleep
  - (C) REM sleep, but only later in the night when nightmares usually occur
  - (D) stage 4
  - (E) sleep onset
11. Which neurotransmitter is affected by opiates?
- (A) serotonin
  - (B) endorphins
  - (C) dopamine
  - (D) GABA
  - (E) acetylcholine
12. In the context of this unit, the term *tolerance* refers to
- (A) treatment of psychoactive drug addicts by peers and other members of society.
  - (B) the amount of sleep a person needs to function normally.
  - (C) the need for an elevated dose of a drug in order to get the same effect.
  - (D) the labeling of individuals automatically produced by the level of our consciousness.
  - (E) the harmful side effects of psychoactive drugs.

13. The information-processing theory says that dreams
- (A) are meaningless by-products of how our brains process information during REM sleep.
  - (B) are symbolic representations of the information we encode during the day.
  - (C) are processed by one level of consciousness but other levels remain unaware of the dreams.
  - (D) occur during REM sleep as the brain deals with daily stress and events.
  - (E) occur only after stressful events, explaining why some people never dream.
14. Which level of consciousness controls involuntary body processes?
- (A) preconscious level
  - (B) subconscious level
  - (C) unconscious level
  - (D) autonomic level
  - (E) nonconscious level
15. Professor Bohkle shows a group of participants a set of geometric shapes for a short period of time. Later, Professor Bohkle shows the same group a larger set of shapes that includes the first set of geometric shapes randomly distributed among the other new images. When asked which shapes they prefer, the participants choose shapes from the first group more often than the new images, even though they cannot remember which images they had seen previously. This experiment demonstrates which concept?
- (A) priming
  - (B) mere-exposure effect
  - (C) shaping
  - (D) fundamental-attribution error
  - (E) primacy

### **ANSWERS TO PRACTICE QUESTIONS**

1. **(B)** Agonists fit into receptor sites for specific neurotransmitters and produce similar results. Choice C is a definition of antagonists. The other choices are incorrect distractions.
2. **(C)** Babies spend more time in REM. As we get older, the time spent in REM gradually decreases. The other choices are incorrect statements about the typical sleep patterns of infants.
3. **(D)** Psychologists define consciousness as our level of awareness of ourselves and our environment. A dimmer switch is the only analogy that implies a continuum from very dim to very bright with variations in between. Consciousness is not like an on/off switch as implied in the other choices.

4. (C) Most often, we cycle through the sleep stages around 5 to 6 times per night. The duration of a sleep cycle is approximately 90 minutes long.
5. (A) People who have richer fantasy lives are more easily hypnotizable. This finding supports role theory, the idea that people may be acting out a social role under hypnosis. Choice B is irrelevant and incorrect according to research. Hilgard's hidden observer is evidence for the dissociation theory of hypnosis. Choices D and E are true but are not evidence for role theory.
6. (C) Activation-synthesis theory states that dreams are a meaningless by-product of brain processes during REM sleep. The other choices do not relate to this theory.
7. (D) The hidden observer indicates that hypnosis might involve a dissociation of consciousness into different levels. Hilgard's experiments are evidence against the other theories of hypnosis, role and state theories. These experiments do not relate to general theories of consciousness or sleep.
8. (E) Research indicates that insomnia and apnea are the most common sleep disorders, even though apnea may be very underdiagnosed.
9. (C) Marijuana is a hallucinogen. Items B and E are not categories of psychoactive drugs.
10. (D) Sleepwalking and night terrors occur during stage 4 sleep and are unrelated to dreaming and REM sleep.
11. (B) Opiates mimic the effect of endorphins in the brain, producing the pain-killing and euphoric, dreamy state associated with these drugs.
12. (C) People who use psychoactive drugs get an increased tolerance for the drugs, meaning they need more of the drugs to get the same effect. In this context, tolerance has nothing to do with the treatment or labeling of others or with sleep.
13. (D) Information-processing theory states that REM sleep and dreaming reflect the brain processing the stresses and events of our recent experience. Choice A is a definition of the activation-synthesis theory of dreams. Dreams and symbolic representations, choice B, fits Freud's theory of dreams best. Choices C and E are incorrect distractors.
14. (E) Automatic functions like heart rate are controlled by the nonconscious level. The levels mentioned in the other choices control other parts of consciousness, except for the autonomic level, which is a created distracter and not a correct term.

15. (B) The mere-exposure effect occurs when we prefer stimuli we have seen before over novel stimuli, even if we do not consciously remember seeing the old stimuli. Priming refers to our ability to answer questions we have been exposed to before, even if we do not remember having seen the questions. Shaping is a concept in operant conditioning, primary-attribution error is a concept in social psychology that describes our tendency to attribute a person's behavior to his or her inner disposition rather than environment. Primacy is a concept from the memory chapter.