

# Chapter 4

## *Varieties of Consciousness*

### Outline

#### I. Toward a Definition

- A. Consciousness is a commonly used term that is difficult to define with precision.
- B. It may be best to avoid a precise definition.
- C. Consciousness has two aspects:
  1. a *perceptual* aspect—an awareness of the external environment, and
  2. an *introspective* aspect—an awareness of one's own mental processes

#### II. Normal Waking Consciousness

- A. **Consciousness** is the awareness of the environment and of one's own mental processes.
- B. William James provided a definition of consciousness over a hundred years ago.
- C. James characterized consciousness as
  1. always changing.
  2. a very personal experience.
  3. sensibly continuous.
  4. selective.

#### III. The Freudian View of Levels of Consciousness

- A. Freud's vision of consciousness often is depicted as an iceberg nearly totally submerged.
  1. Ideas, memories, feelings, or motives of which we are actively aware are said to be **conscious**.
  2. Aspects of our experience that are not conscious, but can easily be brought to awareness, are stored at a **preconscious level**.
  3. Cognitions, feelings, or motives of which we are not aware are said to be in the **unconscious**.
- B. Freud theorized that the unconscious mind can and does influence us.
- C. Contents of the unconscious mind can be found in dreams, slips of the tongue, or humor.

#### IV. Contemporary Investigations of the Unconscious

- A. Currently, researchers are investigating if and how the unconscious mind can process information.
- B. **Subliminal perception** is the process of perceiving and responding to stimuli presented at levels of intensity that are below our absolute threshold—below our level of conscious processing.
  1. There is little scientific evidence for the power of subliminal messages.
  2. Subliminal messages that are complex and meaningful cannot be processed subliminally; however, more simple stimuli can.

- C. **Blindsight** is a phenomenon that occurs in individuals with damage to the primary visual areas of the brain but who can still see simple stimuli.
  - 1. That is, persons without direct vision can be aware of some visually-presented stimuli.
  - 2. There may be intact lower brain centers that can account for blindsight – a **prime candidate for accounting for blindsight is the lateral geniculate nucleus.**
- D. Recent research indicates that the unconscious processing of difficult decisions “sleeping on it” may be more effective than concentrated, active, conscious processing.

#### V. The Stages of a “Good Night’s Sleep”

- A. We spend nearly 200,000 hours of our lives sleeping..
- B. Our best indicators of sleep are measurements of brain electrical activity with EEG, and of muscle tone, with the EMG.
- C. EEG tracings indicate that sleep can be divided into stages.
  - 1. Stage 1 sleep is very light sleep, developing from the waking state.
    - a. This stage is characterized by theta waves of 4-7 cycles per second.
    - b. This stage usually lasts less than ten minutes.
  - 2. In Stage 2 sleep, you can still be easily awakened.
    - a. The EEG pattern is similar to Stage 1 sleep but sleep spindles, brief, high-amplitude bursts of electrical activity, occur about every 15 seconds.
    - b. K-complexes also are noted in the EEG.
  - 3. Stage 3 sleep is characterized by high, slow, delta wave activity of 0.5 to 4 cycles per second.
    - a. In this stage, delta waves constitute between 20 and 50 percent of one’s EEG pattern.
    - b. Internal functions are lowering and slowing.
  - 4. Stage 4 is deep sleep.
    - a. The EEG is filled with slow, recurring delta waves.
    - b. Muscles are totally relaxed.
    - c. About 15 percent of sleep is in this stage.
    - d. Infants spend a great deal of their sleep time in this “restorative” stage.
    - e. Adults increase Stage 4 sleep time after exertion or physical exercise.

#### VI. REM and NREM Sleep

- A. Discovered in the early 1950s, there are periods of sleep during which the eyes dart around under closed eyelids.
  - 1. This stage of sleep is called **rapid eye movement**, or **REM** sleep.
  - 2. People awakened during REM sleep often (about 85 percent of the time) report vivid, clear dreams.
  - 3. During REM sleep there is considerable brain activity—EEG patterns are much like wakefulness.
  - 4. During REM there is *atonia*—a total relaxation of the muscles.
  - 5. People who thrash about during REM and do not remain motionless are said to have *REM sleep disorder*, which may be a precursor to such disorders as **Parkinson’s disease and several forms of dementia.**

6. REM also produces increased sexual arousal.
- B. Periods of sleep during which the eyes do not move are called non-REM, or NREM periods.
  1. Persons awakened during NREM sleep may report dreaming, but not vivid dreams.
  2. NREM sleep accounts for about 75 percent of the sleep of adults.

## VII. Dreaming

- A. The question of what the content of a dream means has been a topic of interest for humans dating back to the ancient Greek philosophers.
- B. The most influential view of the nature of dreams was provided by Freud in his book, *Interpretation of Dreams*.
  1. Freud suggested that many dreams serve a wish-fulfillment purpose.
  2. **Manifest content** is the content of which the dreamer is consciously aware.
  3. **Latent content** is the true, underlying meaning of the dream that resides in a person's unconscious mind.
- C. The **activation-synthesis theory** of dreaming suggests that dreams are activated via physiological mechanisms in the brainstem.
  1. It's a matter of the brainstem generating neural activity, and
  2. the cerebral cortex synthesizing, that activity into meaningful "stories."

## VIII. Sleep Disorders

- A. A good night's sleep is apparently a necessary thing.
- B. Millions of persons, however, have difficulty either getting to sleep, or staying asleep, while others fall asleep unexpectedly and without intent.
- C. Getting less than 6 hours of sleep is a significant predictor of premature death, and getting more than 9 hours of sleep is a significant predictor of serious – and potentially deadly – illnesses.
- D. *Chronic sleep deprivation* is a contributing factor to obesity, hypertension, irritability, poor decision making, cognitive impairment, and loss of concentration and creativity.
  1. Doing with a little less sleep on a regular basis is just as disruptive as being deprived of sleep for long periods for just a few nights.
  2. Getting back on a schedule of 8 hours of sleep per night can (usually) reverse the negative consequences of sleep deprivation.

## IX. Insomnia

- A. **Insomnia** is the inability to fall asleep or stay asleep.
  1. Chronic insomnia afflicts nearly 30 million Americans.
  2. It is more common in the elderly than in younger adults.
- B. It is often difficult to determine what causes insomnia.
- C. Pseudoinomnia is when a person believes he or she is not getting enough sleep, and is sleeping more than he or she realizes.
- D. Seldom do medications work for the long term in treating insomnia.
  1. Although regulating melatonin may help some, research suggests its effectiveness is very limited.
  2. Many cases of insomnia are rooted in learning poor sleep habits.

3. Cognitive and behavioral treatments are often successful in breaking the cycle of insomnia.

#### X. Narcolepsy

- A. **Narcolepsy** involves going to sleep without any intention to do so.
- B. Narcolepsy is associated with the loss of specific types of neurons in the hypothalamus.
- C. There are several other symptoms that accompany narcolepsy:
  1. A sudden decrease in muscle tone
  2. Paralysis upon falling asleep
  3. Dreamlike images that occur as soon as one goes to sleep or awakens.

#### XI. Sleep Apnea

- A. **Sleep apnea** involves patterns of sleep, usually short, during which breathing stops entirely.
- B. As many as 12 million Americans suffer from sleep apnea.
- C. Sleep apnea is a partial cause of hypertension, heart disease, impotence, and memory loss.
- D. The disorder may be root cause of as many as 38,000 cardiovascular deaths each year.
- E. This condition occurs most among men over age 40 who are overweight.
- F. Sleep apnea is a suspect in the cause of Sudden Infant Death Syndrome.

#### XII. Hypnosis

- A. **Hypnosis** is a state of consciousness characterized by:
  1. A marked increase in suggestibility
  2. A focusing of attention
  3. An exaggerated use of imagination
  4. An unwillingness or inability to act on one's own
  5. An unquestioning acceptance of distortions of reality.
- B. Hypnosis is a state of consciousness that typically requires the voluntary cooperation of the person being hypnotized.
- C. What are the common issues concerning hypnosis?
  1. The susceptibility to hypnosis varies from person to person.
    - a. Some people resist and cannot be hypnotized.
    - b. Entering the hypnotic state is entirely voluntary.
    - c. The subject must have the ability to engage easily in daydreaming and fantasy.
    - d. Suggestibility and a degree of passivity or willingness to cooperate are important.
  2. It is unlikely that one will do anything under hypnosis that he or she would not do otherwise.
  3. The issue of whether hypnosis represents a unique state of consciousness is in dispute.
  4. Hypnosis can be used to alleviate physical pain.

5. Whether one can remember things under hypnosis that could not otherwise be remembered is a hotly contested issue.
6. Age-regression hypnotic sessions have not proved valid.
7. Using hypnosis to refresh the memory of a witness can lead to the potential of the creation of pseudomemories, or false memories.

### XIII. Meditation

- A. **Meditation** is a self-induced state of altered consciousness characterized by a focusing of attention and relaxation.
- B. *Transcendental meditation* requires mental focusing and concentration.
- C. *Mindfulness meditation* takes the nearly opposite approach of attending to whatever ideas, thoughts or feelings enter consciousness
- D. Once a person is in a meditative state, measurable physiological changes do take place that allow us to claim meditation to be an altered state of consciousness.
- E. David Holmes has concluded that there are no differences between meditating persons and people who are simply resting or relaxing, but others have challenged Holmes' conclusions.
- F. Recent evidence suggests that meditation *can* provide significant, measureable, and lasting benefits – including more positive mood states, improvement of immune system functioning, and reduction in fatigue and anxiety..

### XIV. Altering Consciousness With Drugs

- A. Chemicals that can alter psychological processes are referred to as psychoactive drugs.
- B. The use of drugs that alter mood, perception and behaviors can have negative outcomes:
  1. *Dependence*—the use of a drug is required to reach and maintain a level of functioning
  2. *Tolerance*—the state in which more and more of a drug is required to attain the same desired effect
  3. *Withdrawal*—a strongly negative reaction (often including vomiting, cramps, and headaches) that occurs when one stops taking a drug
  4. *Addiction*—an extreme dependence, with signs of tolerance and withdrawal in which long-term costs are ignored in favor of short-term pleasures.
- C. We are dealing with drug abuse when we find:
  1. Lack of control
  2. Disruption of interpersonal relationships or difficulties at work
  3. Indications that drug use has continued for at least one month.
- D. There is a continuum from total abstinence through heavy social use to addiction, with no clear dividing line between drug use and abuse.
- E. Drug and alcohol abuse contributes to the deaths of more than 120,000 Americans each year.

### XV. Stimulants

- A. **Stimulants** activate an organism, producing a heightened sense of arousal and elevation of mood.

- B. Caffeine is a widely used stimulant, commonly found in coffee, tea, chocolate and painkillers.
  1. In moderate amounts, it seems to have no life-threatening effects on the user.
  2. A mild dependency can develop, and sudden stoppage can produce headaches.
- D. Nicotine usually is ingested by smoking, and activates excitatory synapses in the central and peripheral nervous system.
  1. Nicotine is an addictive drug, results in more than 440,000 deaths in the U.S., and its use is the single most preventable cause of death.
  2. Smokeless tobacco is used by many as an alternative to smoking.
- D. Cocaine and its derivative “crack” produce pleasure and energy when first entering the bloodstream, either via smoking (free basing), inhaling (snorting), or injection.
  1. Cocaine is so addictive that a person can become dependent after one or two experiences with it.
  2. It is estimated that there are 1.7 million people in the U.S. over the age of 12 who are cocaine users.
- E. Amphetamines are manufactured stimulants with a range of different street names
  1. The drugs mask fatigue.
  2. They can cause an irregular heartbeat and increased blood pressure.

#### XVI. Depressants

- A. **Depressants** are chemicals that reduce one’s awareness of external stimuli, slow bodily functioning, and decrease levels of overt behavior.
- B. Alcohol is the most commonly used of all depressants.
  1. Over 50 percent of alcohol consumption in the U.S. is by persons age 12-20.
  2. That means that these people are using the drug illegally.
  3. Over 100,000 deaths a year are attributed to alcohol use.
- C. Alcohol use by pregnant women results in a myriad of problems for a newborn.
- D. Blood alcohol level (BAL) is affected by how much one drinks and by how fast the alcohol gets into the bloodstream.
  1. The amount of food in the stomach and a person’s gender affects how quickly alcohol is absorbed.
  2. Females absorb alcohol more quickly than males.
  3. One-tenth of one percent (0.1%) alcohol in the bloodstream is enough to declare someone legally drunk in most states.
- E. Opiates, such as morphine and codeine, are called analgesics because they can be used to reduce or eliminate sensations of pain.
  1. They seem to have little effect on motor behavior.
  2. They produce dependence and addiction, and their removal results in pain and depression.
- F. Heroin is an opiate derived from morphine.
  1. Strong addiction and dependency occur rapidly.
  2. Tolerance builds as increased amounts are needed to produce the desired emotional states.
  3. Increased amounts can cause breathing to stop and lead to death.
- G. Barbiturates are synthetically produced sedatives.
  1. They slow nervous system activity by blocking receptor sites of excitatory synapses or by enhancing the effects of inhibitory neurotransmitters.

2. All produce dependency if used regularly, and some are addictive.

#### XVII. Hallucinogens

- A. **Hallucinogens** are chemicals that lead to the formation of hallucinations, usually visual.
- B. LSD (lysergic acid diethylamide) is a potent and popular hallucinogen in most Western cultures.
  1. LSD acts on serotonin receptor sites *and* causes serotonin levels to increase.
  2. Small doses can produce major behavioral effects.
  3. Changes in mood tend to be exaggerations of one's present mood.
  4. Hallucinations involve exaggerations of some actual perception.

#### XVIII. Marijuana

- A. Marijuana is a consciousness-altering drug produced from the cannabis or hemp plant.
  1. In low doses, it can act as a depressant; in larger doses it acts as a hallucinogenic.
  2. In 1998, 72 million Americans over the age of 12 indicated that they had tried marijuana at least once.
- B. The active ingredient in marijuana is THC.
- C. Marijuana can be used to reduce the nausea associated with chemotherapy treatments for cancer.
- D. Marijuana can cause cancer, lung disease, respiratory problems, impair judgment and memory, and physical coordination.
  1. Heavy users show lower verbal IQs than light users.
  2. Long-term use may have genetic implications.
  3. It can contribute to a lower sperm count, and can have negative effects on the unborn, resulting in smaller babies, and an increased number of miscarriages.
  4. There is much variability in potency, quality, and purity of marijuana.
  5. There is little evidence that smoking marijuana significantly increases the risk of developing lung cancer.

#### XIX. Ecstasy

- A. Ecstasy (MDMA) is a drug that is classified as a psychedelic amphetamine.
  1. This has become a popular drug over the last 20 years for adolescents and young adults; effects can be felt in as little as 30 minutes, and euphoria can last for as long as 3 to 4 hours.
- B. Tolerance can develop, and unpleasant physical symptoms can appear after use.
  1. Confusion, sleep problems, depression, severe anxiety, and paranoia can result, and may be felt immediately or weeks after the drug was taken.
  2. There is emerging evidence that brain damage in those parts of the brain associated with thought and memory may occur; the seriousness of side effects is tied to the dose taken.
  3. The interaction of ecstasy with alcohol or antidepressant drugs is particularly dangerous.

## LEARNING OBJECTIVES

1. Explain the four factors in normal waking consciousness?
2. Define what is meant by "levels of consciousness."
3. Name and define the three levels of consciousness proposed by Freud.
4. Explain unconscious processing in terms of blindsight and subliminal perception..
5. Distinguish between the EEG and EMG.
6. Describe the four stages of sleep, their accompanying brain activity, and their distribution across the night.
7. Explain how REM sleep differs from NREM sleep.
8. Describe the patterns of REM sleep and the physiological changes that accompany it.
9. Summarize Freud's and Hobson's views on the content of dreams.
10. Name and describe three common disorders of sleep.
11. Discuss the effects of drugs and melatonin on insomnia.
12. Summarize the cognitive and behavioral underpinnings of insomnia.
13. Define hypnosis, and describe who can be hypnotized
14. List the benefits of hypnosis, and explain the controversy surrounding the issue of hypnosis as a distinct state of consciousness.
15. Describe meditation and explain its proposed benefits.
16. Define dependence, tolerance, withdrawal, addiction, and drug abuse.
17. Discuss the differences between the various different types of stimulant drugs.
18. List the effects of the depressant, alcohol, and explain its relationship to aggression.
19. Describe the effects of hallucinogenic drugs.
20. Explain how marijuana differs from the other drugs discussed.



## Key Terms and Concepts

consciousness \_\_\_\_\_

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psychiatry \_\_\_\_\_

\_\_\_\_\_

conscious \_\_\_\_\_

\_\_\_\_\_

preconscious \_\_\_\_\_

\_\_\_\_\_

unconscious \_\_\_\_\_

\_\_\_\_\_

subliminal perception \_\_\_\_\_

\_\_\_\_\_

blindsight \_\_\_\_\_

\_\_\_\_\_

electroencephalogram (EEG) \_\_\_\_\_

\_\_\_\_\_

electromyogram (EMG) \_\_\_\_\_

\_\_\_\_\_

REM sleep \_\_\_\_\_

\_\_\_\_\_

atonia \_\_\_\_\_

\_\_\_\_\_

manifest content \_\_\_\_\_

\_\_\_\_\_

latent content \_\_\_\_\_

\_\_\_\_\_

activation-synthesis theory \_\_\_\_\_

\_\_\_\_\_

**insomnia** \_\_\_\_\_

\_\_\_\_\_

**narcolepsy** \_\_\_\_\_

\_\_\_\_\_

**sleep apnea** \_\_\_\_\_

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**hypnosis** \_\_\_\_\_

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**meditation** \_\_\_\_\_

\_\_\_\_\_

**psychoactive drugs** \_\_\_\_\_

\_\_\_\_\_

**stimulants** \_\_\_\_\_

\_\_\_\_\_

**depressants** \_\_\_\_\_

\_\_\_\_\_

**hallucinogens** \_\_\_\_\_

\_\_\_\_\_

**illicit drugs** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## A Few Flash Card Possibilities for Chapter 4

(Remember: The best flash cards are those you make yourself.)

<b>FREUD'S LEVELS OF CONSCIOUSNESS</b>	conscious, preconscious, and unconscious
<b>ELECTROENCEPHALOGRAPH EEG</b>	used to measure overall electrical activity of the brain—indicator of sleep levels
<b>ALPHA ACTIVITY</b>	brain wave pattern indicative of quiet relaxation with eyes closed
<b>REM SLEEP</b>	rapid eye movement sleep; indicative of dreaming
<b>ATONIA</b>	paralysis of totally relaxed muscles found in REM sleep
<b>INSOMNIA</b>	the inability to fall (or stay) asleep
<b>SLEEP APNEA</b>	sleep disorder in which one totally stops breathing
<b>STIMULANTS</b>	psychoactive drugs that increase nervous system activity
<b>HALLUCINOGENS</b>	drugs that alter perceptions and mood

# Practice Test Questions

## Multiple Choice

- Which psychologist was LEAST interested in matters related to consciousness?  
 a. John Locke  
 b. William James  
 c. John B. Watson  
 d. Wilhelm Wundt
- James claimed that normal waking consciousness has four characteristics. Which of the following is NOT one of those characteristics? Consciousness is always  
 a. selective.  
 b. stable.  
 c. sensibly continuous.  
 d. personal.
- To enter an "altered state of consciousness"  
 a. is to change one's perception of one's self and of the environment.  
 b. is to have weird, strange, or bizarre experiences.  
 c. is something that one cannot do voluntarily, or on purpose.  
 d. requires that one remain awake and aware.
- The notion that there might be an unconscious level of awareness  
 a. is a very old one, dating back to early philosophers.  
 b. began with the writings of Sigmund Freud.  
 c. was the centerpiece of early behaviorism.  
 d. is a fairly new one in psychology, i.e., less than 20 years old.
- Which of these is NOT a level of consciousness proposed by Freud?  
 a. preconscious  
 b. unconscious  
 c. postconscious  
 d. conscious
- Research on subliminal perception tells us that  
 a. we learn subliminal information all the time.  
 b. there is no way that subliminal messages can have any effect on behaviors.  
 c. one really can improve oneself by using subliminal video and audio tapes.  
 d. subliminal messages need to be very simple if they are to have any effect at all.
- In addition to an EEG record, the next best indicator of real sleeping is  
 a. snoring sounds.  
 b. blood pressure.  
 c. muscle tension.  
 d. self-report.
- The stage of consciousness just before one goes to sleep, when one is quiet and relaxed, with eyes closed, produces a pattern of brain wave activity that is  
 a. rapid and irregular.  
 b. called alpha wave activity.  
 c. made up of sleep spindles.  
 d. like the pattern when one is dreaming.

9. Delta waves are most common and most evident in an EEG record when a person is
- a. relaxed, but not quite asleep.
  - b. in the middle of a dream.
  - c. thinking about something, perhaps a problem.
  - d. in the deepest stage of sleep.
10. Which of the following is most certainly true?
- a. People only remember “nightmares” and not “regular” dreams.
  - b. Everybody goes through three stages of sleep three times each night.
  - c. We must be aware of the fact that we are dreaming when we are dreaming.
  - d. To some extent, everybody dreams, and probably every night.
11. We know that your eyes move when you are in REM sleep. What happens to your EEG record?
- a. It shows that your muscles are tense and immobile.
  - b. It appears that you might be awake.
  - c. It is filled with cyclical alpha patterns.
  - d. It shows a preponderance of slow theta waves.
12. Which of the following is most likely to occur during REM sleep?
- a. Your muscles will become totally relaxed.
  - b. You will be dreaming about some sexual fantasy.
  - c. You will wake up as soon as the REM episode is over.
  - d. Your heart rate and blood pressure will decrease significantly.
13. If I were to interrupt your REM sleep episodes for two nights in a row, what would be the most likely effect?
- a. You would become anxious and paranoid the next day.
  - b. You would compensate by engaging in an extra NREM period on the third night.
  - c. The next night you would show REM rebound, REMing more than usual.
  - d. It would take about two or three weeks for you to return to your normal sleep patterns.
14. For which of the following is there the best evidence?
- a. The more one exercises, the longer one will sleep.
  - b. There are significant changes in blood chemistry that occur during sleep.
  - c. The older we get, the more sleep we need.
  - d. There are changes in the brain during sleep that are indicative of memory formation.
15. The chronic inability to get a “good night’s sleep” is called
- a. insomnia.
  - b. sleep apnea.
  - c. narcolepsy.
  - d. SIDs.

16. When one experiences sleep apnea, what happens?  
 a. One is unable to REM and/or dream.  
 b. One's breathing stops during sleeping.  
 c. One falls asleep suddenly and without warning.  
 d. One is unable to remember one's dreams.
17. With regard to hypnosis, which statement is most clearly TRUE?  
 a. There is no good way to predict who can be hypnotized.  
 b. Under hypnosis, anyone can be made to do anything.  
 c. Hypnosis can ease the experience of real, physical pain.  
 d. When under hypnosis, one has no idea of what one is doing.
18. Which of these is the POOREST predictor of whether one can be hypnotized?  
 a. the extent to which one engages in fantasy or daydreaming  
 b. a history of being an avid reader or actor  
 c. the extent of one's passivity  
 d. if one is male or female
19. Which of the following does NOT occur when a person is successfully meditating?  
 a. Bodily processes slow.  
 b. Oxygen intake increases markedly.  
 c. Heart rate decreases significantly.  
 d. Alpha waves appear on an EEG record.
20. All drugs that alter one's state of consciousness are referred to as  
 a. psychoactive.  c. illicit.  
 b. hallucinogenic.  d. uppers or downers.
21. What one word best differentiates drug abuse from drug use?  
 a. legality  c. psychological  
 b. maladaptive  d. amount
22. Worldwide, the most common of all chemical stimulants is  
 a. heroin.  c. alcohol.  
 b. nicotine.  d. caffeine.
23. The active chemical substance in marijuana is also found in  
 a. chocolate.  c. cola drinks.  
 b. hashish.  d. heroin.
24. Albeit indirectly, more deaths can be attributed to \_\_\_\_\_ than to any other psychoactive drug.  
 a. heroin  c. nicotine  
 b. cocaine  d. LSD
25. Everything else being equal, alcohol use and abuse is LEAST likely to occur among  
 a. persons of low socioeconomic status.  c. Orthodox Jews.  
 b. American Indian adolescents.  d. Irish-Americans.

### True/False

1. \_\_\_ True \_\_\_ False William James characterized one's awareness of one's self and one's surroundings as a "stream of consciousness."
  2. \_\_\_ True \_\_\_ False Information can be processed unconsciously.
  3. \_\_\_ True \_\_\_ False Freud described consciousness by using the analogy of an iceberg, where only the tip of one's mental life is fully conscious at any one time.
  4. \_\_\_ True \_\_\_ False The most reliable indicator of sleep is the electroencephalogram.
  5. \_\_\_ True \_\_\_ False REM sleep is accompanied by a muscular relaxation called atonia.
  6. \_\_\_ True \_\_\_ False Hypnosis can help us remember details of traumatic experiences.
  7. \_\_\_ True \_\_\_ False Stimulants, depressants, and hallucinogens influence cognitions, but do not influence affects or behaviors.
  8. \_\_\_ True \_\_\_ False Alcohol, taken in the proper dosage, is a stimulant to thinking.
  9. \_\_\_ True \_\_\_ False At the present time, there is no known useful medical application for marijuana.
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## Answers to Practice Test Questions

### Multiple Choice

1. **c** I hope I didn't catch you on this one, which actually goes back to Chapter 1. John Watson founded *Behaviorism*, which denied the usefulness of consciousness as a scientific concept.
2. **b** James claimed that our consciousness is selective, continuous, personal, and changing, not stable.
3. **a** Altered states of consciousness need not be bizarre or strange, and include sleeping. They are simply changes in the way we perceive the environment and ourselves.
4. **a** Although there has, of late, been a renewed interest in the unconscious, the notion is a very old one, predating psychology, going back to some early philosophers.
5. **c** Freud describes a conscious, preconscious, and an unconscious level of awareness, but never said anything about a postconscious mind.
6. **d** It may be a bit conservative, but the only statement here for which there is any evidence at all is the last one.
7. **c** Except for measures of muscle tension-relaxation, these indicators are very unreliable.
8. **b** This item provides a decent definition for what is called alpha activity.
9. **d** In fact, a preponderance of delta waves is the best indicator of a stage of deep sleep.
10. **d** Although the first three statements may be true, only the fourth is most generally true. Remember, in a multiple-choice exam, the task is to find the best alternative.
11. **b** EEG records tell us nothing about muscle activity, and shows virtually no alpha or theta waves during REM sleep. They appear almost like waking waves.
12. **a** During REM sleep, one is likely to become paralyzed, not because of muscle tension but because of a total muscle relaxation, called "atonia."
13. **c** About the only change would be that you would REM more than usual when you were finally left to sleep.
14. **d** As reasonable as the other alternatives may sound, there is only good evidence for the last of these four.
15. **a** The chronic (occurring regularly over time) inability to get a good night's sleep defines the sleep disturbance called insomnia.
16. **b** Apnea refers to a cessation of breathing. When one stops breathing while asleep, we have "sleep apnea" — a potentially dangerous condition.
17. **c** All four statements sound reasonable (as they should in a good multiple-choice item), but here, only the third is actually true.
18. **d** Granted that some of the first three alternatives do look a bit weird, but they all do predict hypnotize-ability — being male or female does not.
19. **b** When one is successfully meditating, bodily processes slow, heart rate decreases, alpha waves increase, and oxygen intake decreases as well.
20. **a** Alternatives **a**, **c**, and **d** may be true of some drugs, but collectively, such drugs are referred to as psychoactive.
21. **b** This one requires some thought. By definition, we find that drug abuse in some way interferes with normal functioning to the extent that it is maladaptive, getting in the way of one's proper adaptation to the environment and to others.



22. **d** Here we have a trivia item. Sorry. Caffeine is the most common stimulant. Alcohol, remember, is a depressant.
23. **b** The active ingredient in marijuana (THC) is also found in hashish.
24. **c** Sure, heroine, cocaine, and LSD can kill, but smoking, and hence the addictive nicotine, is responsible for many more deaths.
25. **c** One truly has to be careful about such generalizations—remember always we are talking “in general, in the long run, more often than not” here. Within these groups, we would expect alcohol consumption to be least troublesome among orthodox Jews.

### **True/False**

1. **T** He sure did — making the point that one’s consciousness could not be held still and analyzed into bits and pieces.
2. **T** It can be. That processing is likely to be very simple, straightforward, and not of great significance to us, but there is little doubt that some information is processed without awareness.
3. **T** Most of our mental life, Freud argued, was unconscious. Like the tip of an iceberg, only a small portion is readily available in our conscious mind.
4. **T** Self-report is the most unreliable indicator.
5. **T** Indeed, while we are in REM sleep, we become immobile—not because our muscles tense, but because they have so thoroughly relaxed, a state called atonia.
6. **T** Hypnosis can do little to help us learn and remember information we have not yet encountered, but it can help to reduce anxiety and thus enable us to remember details of anxiety-producing events that we might not be able to remember otherwise.
7. **F** If you think about this one long enough, it almost becomes silly. Of course these drugs can and often do affect the way one feels and behaves as well as the way one thinks.
8. **F** Sorry. No matter the dosage in which it is taken, alcohol is a depressant drug.
9. **F** As a matter of fact, marijuana seems to be helpful in the treatment of glaucoma and as an anti-nausea agent for patients undergoing chemotherapy. The main issue now, in this country, is legalizing an otherwise illegal substance for these purposes.

# Experiencing Psychology

## Let's Try a Little Meditation

A reasonable meditation session usually lasts for about 20 minutes, but giving it a good try for five minutes will be long enough to provide you with an example of what the procedure is all about. It also will be long enough to realize how difficult it is to withdraw from normal waking consciousness and all of its demands for your attention. As best you can, follow these instructions as literally as possible. (It might help if someone were to read these directions to you, softly and slowly.)

- Sit in a comfortable chair, with nothing on your lap or in your hands.
- Sit with your legs uncrossed. Cup one hand loosely inside the other on your lap, or even a bit higher if that is more comfortable.
- Close your eyes gently and relax. Begin with your feet, then your ankles, then your calves, and progress to your face, letting all of your muscles relax.
- Breathe slowly through your nose. Each time you breathe, count slowly from 1 to 10, then take another breath.
- Focus on your breathing and your counting. The object is to exclude all other thoughts from your consciousness. When distracting thoughts occur, try to ignore, focusing again on your breathing and counting.

After five minutes or so, open your eyes and return to normal consciousness. How did you do? Were you really able to exclude all intruding thoughts from your awareness? What kinds of thoughts interfered with your meditation? Thoughts about the past? Thoughts about the future? If you were to try this every day, how long do you think it would take you to be able to successfully meditate — in the sense of reserving a period of time for keeping intruding thoughts to a minimum?

# Psychology on the Internet

## 1. Normal Waking Consciousness and Levels of Consciousness

In many ways it may be claimed that to be alive is to be conscious. To be conscious is to be aware of your environment and aware of your own mental activities. For the science of psychology, consciousness has always been a slippery concept, and it remains so today. Indeed, most of the websites on the Internet having to do with “consciousness” are only tangentially related to any of the discussions found in Chapter Four. Most sites are commercial and involve someone wanting to sell you something, often a way to an altered or “higher” state of consciousness. As is always the case, we caution a skeptical eye as you exam even these sites.

<http://www.warwick.ac.uk/cep>

(a relatively new site, “Consciousness and Experiential Psychology,” a section of the British Psychological Society. It takes some looking to find the “good parts.”)

<http://assc.caltech.edu/index.htm>

(the site of the Association for the Scientific Study of Consciousness)

<http://consciousness.arizona.edu>

(the site for the “Center for Consciousness Studies” at the University of Arizona)

<http://psychclassics.yorku.ca/James/consciousness.htm>

(a true classic: William James’ “Does Consciousness Exist?” — 1904)

## 2. SLEEP

Research on sleep has come a very long way in the last 50 years. We understand the basic physiology of sleep and — with the discovery of REM sleep — have a window to a sleeper’s dreaming. As is often the case in science, it is the “why” questions that remain elusive. Why do we sleep when we do and for as long as we do? Why do we dream? Why do we dream what we dream? These websites expand greatly on what we have covered in the text.

<http://www.dreamviews.com/sleepstages.php>

(a nice, straightforward summary of the stages of sleep. The site is devoted to “lucid dreaming” and is well worth a moment to check it out.)

<http://faculty.washington.edu/chudler/sleep.html>

(many good ideas, extensions, and discussions having to do with sleep and dreaming in general, with a particularly good section on **why** we sleep, and many great links to other reliable websites)

<http://www.sleepfoundation.org>

(a very rich site, with many links.)

<http://sleepnet.com/depriv.htm>

(a good site in general and in particular, this is a nice piece on sleep deprivation — mostly in teenagers)

<http://www.sleep-deprivation.com>

(This site is as its name suggests. It’s a great site and is constantly updated.)

### **3. SLEEP DISORDERS**

At some point in time, all of us will find that we are having difficulty sleeping. In nearly every case we know exactly why — or have a pretty good idea why. Maybe we’re just experiencing an inordinate amount of stress in our everyday lives. Perhaps we are suffering from some physical illness or injury. We may find ourselves in a strange or unusual sleeping environment. Such incidents are seldom a matter of great concern. Sometimes, however, sleep-related problems are more than a person can fully understand and more than can be dealt with simply and easily. In such cases, that person may have a sleep disorder. There are several such disorders. The good news is that all are very treatable.

<http://www.medicinenet.com/sleep/article.htm>

(a very good summary article on sleep, with an emphasis on sleep disorders)

<http://www.sleepnet.com>

(a website devoted to “Everything you always wanted to know about sleep disorders but were too tired to ask” — a strength is a set of links to over 200 additional sites)

<http://www.nhlbi.nih.gov/health/public/sleep>

(a website hoisted by the U.S. Department of Health and Human Services and The National Institute of Health. I found the homepage section on “Publications and Fact Sheets” most helpful.)

## 4. HYPNOSIS

I hardly need to warn you, do I? Taking steps to alter consciousness can be a pretty scary business. You might to explore hypnosis or meditation, but please tread carefully.

<http://www.hypnosis.com>

(the website of “The American Board of Hypnotherapy” — mostly for professionals, is very flashy, has many links, but most are commercial)

<http://www.apa.org/divisions/div30/hypnosis.html>

(the APA’s Division 30 — hypnosis — homepage)

## 5. MEDITATION

Of all the safe (everything is relative, of course) means of altering one’s consciousness, meditation is likely the oldest technique. At root base there are only a few meditation activities, but there are hundreds of variations of these few themes. Like other truly transforming activities, it seems difficult to self-teach effective meditation. Among the thousands available, here are three websites inviting visitors to at least experiment with meditation. (The third one is a website on “Yoga Meditation of the Himalayan Tradition.”) They attempt to provide “user-friendly, clear, straightforward meditation instruction.”

<http://www.meditationcenter.com>

<http://www.meditationsociety.com>

## 6. ALTERING CONSCIOUSNESS WITH DRUGS

There is no doubt that there are many, many substances — some legal, some not — that can alter a person's state of consciousness. An extra mug of coffee on the way to class may do it. A couple of beers after work may do it. Simply being in the same room where marijuana is being smoked may do it. Free-basing crack-cocaine is most certainly going to do it. It is difficult not to be “preachy” in this section. I'll provide just a few websites for you to explore, but they are good ones.

<http://www.health.org>

(a great source of up-to-date research and statistics on drug use)

<http://www.nida.nih.gov>

(as good a source as you will find anywhere --- from the National Institute on Drug Abuse of the National Institutes of Health. It doesn't rant or rave or scream or scold. It simply provides the facts. It is simply the best place to begin on this subject matter.)

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