Introduction and Brain States and Consciousness

Objective 3-1: Describe the place of consciousness in psychology’s history.

1. The study of was central in the early years of psychology and in recent decades, but for quite some time it was displaced by the study of observable ____________________.

2. Advances in neuroscience made it possible to relate ____________________ to various mental states; as a result, psychologists once again affirmed the importance of Define consciousness in a sentence.

3. The interdisciplinary study of how brain activity is linked with mental processes is called ____________________.

Objective 3-2: Explain what is meant by "dual processing," as revealed by today’s cognitive neuroscience.

4. Much of our everyday thinking, feeling, and acting operates outside of our ____________________ awareness.

5. Unconscious information processing occurs on (sequential/parallel) tracks.

6. The principle that information is often processed on separate ____________________ and ____________________ tracks is called ____________________.

7. The condition in which a person responds to a visual stimulus without consciously experiencing it is called ____________________.

8. Our vision is actually a ____________________ - ____________________ system with a visual ____________________ track enabling us to recognize things and plan future actions and a visual ____________________ track guiding our moment-to-moment movements.

9. Solving new problems (requires/does not require) conscious attention.

Objective 3-3: Discuss how much information we can attend to at once.

10. When we focus our conscious awareness on a particular stimulus, we are using ____________________.

11. Your ability to attend to only one voice among many is called the ____________________.

12. When researchers distracted participants with a counting task, the participants failed to notice a gorilla-suited assistant who passed through, thus displaying ____________________. Two specific forms of this phenomenon are ____________________ and ____________________.

13. Some stimuli are so powerful they demand our attention, causing us to experience ____________________.

APPLICATIONS:

14. Concluding his presentation on levels of information processing, Miguel states that:

   a. humans process both conscious and unconscious information in parallel.
   b. conscious processing occurs in parallel, while unconscious processing is sequential.
   c. conscious processing is sequential, while unconscious processing is parallel.
   d. all information processing is sequential in nature.

15. When we become absorbed in reading a book, we do not hear the people talking around us. This selective attention is most accurately defined as

   a. the focusing of conscious awareness on a particular stimulus.
   b. our awareness of ourselves and our environment.
c. failing to see visible objects when our attention is directed elsewhere.

d. separating our conscious awareness to focus on two tasks at the same time.

Sleep and Dreams

Objective 3-4: Describe how our biological rhythms influence our daily functioning

16. Our bodies' internal "clocks" control several ______________________ ____________________.

17. The sleep-waking cycle follows a 24-hour clock called the ______________________ ____________________.

18. Body temperature (rises/falls) as morning approaches and begins to (rise/fall) again before we go to sleep.

19. When people are at their daily peak in circadian arousal, ______________________ is sharpest and ______________________ is most accurate.

20. Our circadian rhythm is altered by ______________________ and ______________________.

Objective 3-5: Describe the biological rhythm of our sleeping and dreaming stages.

21. The sleep cycle consists of ______________________ distinct stages.

22. The rhythm of sleep cycles was discovered when Aserinsky noticed that, at periodic intervals during the night, the ______________________ of a sleeping child moved rapidly. This stage of sleep, during which ______________________ occur, is called ______________________ ____________________.

23. The relatively slow brain waves of the awake but relaxed state are known as ______________________ waves. As you grow tired, you slip into ______________________.

24. During non-REM stage 1 sleep, people often experience ______________________ sensations similar to ______________________. These sensations may later be incorporated into ______________________.

25. The bursts of brain-wave activity that occur during NREM-2 sleep are called ______________________ ____________________.

26. Large, slow brain waves are called ______________________ waves. They occur in non-REM stage ______________________, which is therefore called ______________________ - ______________________ sleep. A person in the latter stage of sleep generally will be (easy/difficult) to awaken. It is during this stage that children may wet the bed or begin ______________________.

Describe the bodily changes that accompany REM sleep.

27. During REM sleep, the motor cortex is (active/relaxed), while the muscles are (active/relaxed). This creates the disturbing experience of and for this reason, REM is often referred to as ______________________ ____________________ sleep.

28. The sleep cycle repeats itself about every ______________________ minutes. As the night progresses, deep NREM-3 sleep becomes (longer/briefer) and REM periods become (longer/briefer). Approximately ______________________ percent of a night's sleep is spent in REM sleep.

APPLICATIONS:

29. Match the sleep stage with a description of that stage or an activity that occurs then.

<table>
<thead>
<tr>
<th>Sleep Stage</th>
<th>Description/Activity</th>
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<tbody>
<tr>
<td>1. NREM-1 sleep</td>
<td>______________________</td>
</tr>
<tr>
<td>2. NREM-2 sleep</td>
<td>______________________</td>
</tr>
<tr>
<td>3. NREM-3 sleep</td>
<td>______________________</td>
</tr>
<tr>
<td>4. REM sleep</td>
<td>______________________</td>
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</tbody>
</table>
30. Given that REM is referred to as paradoxical sleep, which of the following is true about what happens when Nicholas dreams that he is running around the school track?
   a. Studies of people deprived of REM sleep indicate that REM sleep is unnecessary.
   b. The body's muscles remain relaxed while other body systems are active.
   c. It is very easy to awaken a person from REM sleep.
   d. The body's muscles are very tense while the brain is in a nearly meditative state.

31. Although her eyes are closed, Adele's brain is generating bursts of electrical activity. It is likely that Adele is
   a. under the influence of a depressant.
   b. under the influence of an opiate.
   c. in REM sleep.
   d. having a near-death experience.

32. Newborns spend nearly ______________________ (how much?) of their day asleep, while adults spend no more than ____________________.

33. Sleep patterns are influenced by ____________________ , as indicated by the fact that sleep patterns among (identical/ fraternal) twins are very similar. Sleep is also influenced by , as indicated by the fact that people now sleep (more/less) than they did a century ago.

34. Our biological clock is reset each day by exposure to ____________________, which triggers proteins in the ______________ of the eyes to signal the brain's ______________ (a), which causes the brain's ______________ (b) gland to increase or decrease its production of __________________ (c).

Objective 3-7: Describe sleep's functions.

35. Two possible reasons for sleep are to ______________________ us and to help us ______________________ by restoring and repairing ____________________ tissue. Animals with high waking ____________________ produce an abundance of chemical ____________________ that are toxic to ____________________. Sleep also facilitates our ____________________ of the day's experiences and stimulates ____________________ thinking.

36. During deep sleep, a growth hormone is released by the ____________________ gland. Adults spend (more/less) time in deep sleep than children and so release (more/less) growth hormone.

37. (Close-up) Exercise (improves/ disrupts) sleep and (improves/disrupts) athletic performance. The optimal exercise time is ____________________.

APPLICATIONS:

38. Concluding her presentation on contemporary theories of why sleep is necessary, Marilynn makes all of the following points except that
   a. sleep may have evolved because it kept our ancestors safe during potentially dangerous periods.
   b. sleep gives the brain time to heal, as it restores and repairs damaged neurons.
   c. sleep encourages growth through a hormone secreted during NREM-3.
   d. slow-wave sleep provides a "psychic safety valve" for stressful waking experiences.

39. Arsenio is participating in a sleep experiment. While he sleeps, a PET scan of his brain reveals increased activity in the amygdala of the limbic system. This most likely indicates that Arsenio is in sleep.
Objective 3-8: Describe the effects of sleep loss, and identify the major sleep disorders.

40. Allowed to sleep unhindered, most people will sleep ____________ (how many?) hours a night.

41. Students who sleep ____________ (how many?) or fewer hours each night have a higher risk of ____________ than those who sleep ____________ hours or more.

42. Another effect of sleep deprivation is to promote weight gain by increasing the hormone ____________ and decreasing ____________ the hormone ____________. Another is that sleep deprivation may suppress the functioning of the body's ____________ system and increase the risk of ____________. Another indication of the hazards of this state is that the rate of ____________ tends to increase immediately after the spring time change in Canada and the United States.

43. A persistent difficulty in falling or staying asleep is characteristic of ____________. Sleeping pills and alcohol may make the problem worse since they tend to (increase/reduce) REM sleep.

State several tips for those suffering from insomnia.

44. The sleep disorder in which a person experiences uncontrollable sleep attacks is ____________. People with severe cases of this disorder may collapse directly into ____________ sleep and experience a loss of ____________. This disorder may be linked to low levels of the neurotransmitter ____________, which is linked to alertness.

45. Individuals suffering from ____________ ____________ stop breathing while sleeping. This disorder is especially prevalent among ____________

46. The sleep disorder characterized by extreme fright and rapid heartbeat and breathing is called ____________. Unlike nightmares, these episodes usually happen early in the night, during NREM- ____________ sleep. The same is true of episodes of ____________ and ____________ problems that (run/do not run) in families. These sleep episodes are most likely to be experienced by (young children/adolescents/older adults), in whom this stage tends to be the ____________ and ____________.

APPLICATIONS:

47. Norbert's wife complains that she has to stay up all night to be sure he starts breathing again each time he stops breathing for a minute or so. So, Norbert consults his doctor and learns that he is suffering from

   a. sleep apnea.    c. night terrors.
   b. narcolepsy.    d. insomnia.

48. A person who falls asleep in the midst of a heated argument probably suffers from

   a. sleep apnea.    c. night terrors.
   b. narcolepsy.    d. insomnia.

Objective 3-9: Describe the most common content of dreams.

49. Dreams experienced during ____________ sleep are vivid, emotional, and bizarre.

50. On average, people spend ____________ (how many?) years of life in dreams.

51. For both men and women, 8 in 10 dreams are marked by (positive/negative) emotions, such as fears of being ____________

   ____________

52. Most dreams (incorporate/do not incorporate) traces of previous days’ experiences.

53. While we sleep, our mind (monitors/does not monitor) stimuli in the environment.
Objective 3-10: Identify proposed explanations for why we dream.

54. Freud referred to the actual content of a dream as its __________________ content. Freud believed that this is a censored, symbolic version of the true meaning, or __________________ content, of the dream.

55. According to Freud, most of the dreams of adults reflect __________________ wishes and are the key to understanding inner __________________. To Freud, dreams serve as a psychic __________________ that discharges otherwise unacceptable feelings.

56. Researchers who believe that dreams serve an __________________-processing function receive support from the fact that REM sleep facilitates __________________.

57. Brain scans confirm the link between __________________ sleep and __________________.

58. Other theories propose that dreaming serves some __________________ function, for example, that REM sleep provides the brain with needed __________________. Such an explanation is supported by the fact that (infants/adults) spend the most time in REM sleep.

59. Still other theories propose that dreams are elicited by random bursts of __________________ activity originating in lower regions of the brain, such as the __________________. According to one version, dreams are the brain's attempt to make sense of this activity. The bursts have been shown by PET scans to be given their emotional tone by the brain's __________________ system, especially the __________________. Other theorists see dreams as a natural part of brain __________________ and __________________ development.

60. Researchers agree that we (need/ do not need) REM sleep. After being deprived of REM sleep, a person spends more time in REM sleep; this is the __________________ __________________ effect.

61. REM sleep. (does/does not) occur in other mammals. Animals such as fish, whose behavior is less influenced by learning, (do/do not) dream. This finding supports the __________________-____________________ theory of dreaming.

APPLICATIONS:

62. Barry has participated in a sleep study for the last four nights. He was awakened each time he entered REM sleep. Now that the experiment is over, Barry will most likely show a(n)(increase/ decrease) in REM sleep, a phenomenon known as __________________

63. Bahara dreams that she trips and falls as she walks up the steps to the stage to receive her college diploma. Her psychoanalyst suggests that the dream might symbolize her fear of moving on to the next stage of her life-a career. The analyst is evidently attempting to interpret the __________________ content of Bahara's dream.

64. Six-month-old Piper spend two-thirds of the day sleeping and most of that time in REM sleep. Her 25-year-old mother sleeps only 8 hours with fewer hours in REM sleep than her daughter. According to a physiological theory of dreaming, this makes sense because the brain activity associated with REM sleep

a. fixes the day's activities in memory.
b. gives meaning to random neural activity.
c. provides the brain with periodic stimulation.
d. keeps the infant in deep sleep.

Hypnosis

Objective 3-11: Define hypnosis, and describe how a hypnotist can influence a hypnotized subject.

65. Hypnosis is a____________________

____________________ in which a hypnotist suggests that a subject will experience certain feelings or thoughts, for example.

66. Most people are (somewhat/ not at all) hypnotically suggestible.
Describe people who are the most susceptible to hypnosis.

67. Research studies show that "hypnotically refreshed" memories combine ________________ with ________________.

68. To find out if hypnosis can get people to act against their will, Orne and Evans introduced a ________________ group of people who pretended to be hypnotized.

69. Hypnotherapists have helped some people alleviate headaches, asthma, and stress-related skin disorders through the use of ________________ suggestions. Hypnosis (is/is not) especially helpful for the treatment of obesity. It (is/is not) useful in treating smoking, drug, and alcohol addictions.

70. Hypnosis (can/cannot) relieve pain.

Objective 3-12: Discuss whether hypnosis is an extension of normal consciousness or an altered state.

71. Skeptics believe that hypnosis may reflect the workings of ________________ ________________. These findings provide support for the ________________ ________________ theory of hypnosis.

72. An ________________ person in a legitimate ________________ can induce people—hypnotized or not—to perform some unlikely acts.

Summarize the argument that hypnosis is not an altered state of consciousness.

73. Hilgard has advanced the idea that during hypnosis there is a special ________________ ________________ state of ________________, or split, between different levels of consciousness. For example, he believes that there is a split between the ________________ and ________________ aspects of pain. Hypnotic pain relief may also be due to selective ________________, that is, to the person's focusing on stimuli other than pain.

APPLICATIONS:

74. An attorney wants to know if the details and accuracy of an eyewitness's memory for a crime would be improved under hypnosis. Given the results of relevant research, what should you tell the attorney?

   a. Most hypnotically retrieved memories are either false or contaminated.
   b. Hypnotically retrieved memories are usually more accurate than conscious memories.
   c. Hypnotically retrieved memories are purely the product of the subject's imagination.
   d. Hypnosis only improves memory of anxiety-provoking childhood events.

75. Of the following individuals, who is likely to be the most hypnotically suggestible?

   a. Bill, a reality-oriented stockbroker
   b. Janice, an actress with a rich imagination
   c. Megan, a sixth-grader who has trouble focusing her attention on a task
   d. Darren, who has never been able to really "get involved" in movies or novels

76. Research studies of the effectiveness of hypnosis as a form of therapy have demonstrated that

   a. for problems of addiction, such as smoking, hypnosis has not been especially effective.
   b. posthypnotic suggestions have helped alleviate headaches, asthma, and stress-related skin disorders.
c. as a form of therapy, hypnosis is no more effective than positive suggestions given without hypnosis.
d. all of these statements are true.

77. Those who consider hypnosis a social phenomenon contend that
a. hypnosis is an altered state of consciousness.
b. hypnotic phenomena are unique to hypnosis.
c. hypnotized subjects become unresponsive when they are no longer motivated to act as instructed.
d. all of these statements are true.

Drugs and Consciousness

Objective 3-15: Discuss the nature of drug tolerance, dependence, and addiction, and identify some common misconceptions about addiction.

78. Drugs that alter moods and perceptions are called ____________________ drugs.

79. Drug users who require increasing doses to experience a drug’s effects have developed ____________________ for the drug. With continued use, the user's brain counteracts the disruption to its normal functioning; thus, the user experiences ____________________.

80. After ceasing to use a drug, a person who experiences ____________________ symptoms has developed a physical ____________________. Regular use of a drug to relieve stress is an example of a ____________________ dependence. A person who has a compulsive craving for a substance despite adverse consequences is ____________________ to that substance.

(Thinking Critically) Briefly state three common misconceptions about addiction.

81. The three broad categories of drugs discussed in the text include ____________________, which tend to slow body functions; ____________________, which speed body functions; and ____________________, which alter perception. These drugs all work by mimicking, stimulating, or inhibiting the activity of the brain's ____________________ .

APPLICATION:

82. Dan has recently begun using an addictive, euphoria-producing drug. Which of the following will probably occur if he repeatedly uses this drug?

a. As tolerance to the drug develops, Dan will experience increasingly pleasurable "highs."
b. The dosage needed to produce the desired effect will increase.
c. After each use, he will become more and more elated.
d. Dependence will become less of a problem.

Objective 3-14: Identify the depressants, and describe their effects.

83. Depressants ____________________ nervous system activity and ____________________ body function. Low doses of alcohol, which is classified as a ____________________, slow the activity of the ____________________ nervous system.

84. Alcohol is a ____________________; it may make a person more ____________________ or more aggressive. Alcohol affects memory by interfering with the process of transferring experiences into ____________________-________________ memory. Also, blackouts after drinking result from alcohol's suppression of ____________________

85. Excessive use of alcohol can also affect cognition by the brain, especially in (men/women). Alcohol use marked by tolerance and withdrawal symptoms when use is suspended indicates ____________________ . Alcohol also reduces ____________________ and focuses one's attention on an ____________________ situation and away from ____________________

Describe how a person's expectations can influence the behavioral effects of alcohol.
86. Tranquilizers, which are also known as ________________ , have effects similar to those of alcohol.
87. Opium, morphine, and heroin all (excite/depress) neural functioning. Together, these drugs are called the ________________ . When they are present, the brain eventually stops producing ________________ .

**Objective 3-15:** Identify the stimulants, and describe their effects.

88. The most widely used stimulants are the ________________ , ________________ , the ________________ , ________________ , ________________ , and ________________ . Stimulants (are/are not) addictive.
89. Eliminating ________________ would increase life expectancy more than any other preventive measure.
90. Nicotine quickly triggers the release of ________________ and ________________ , two neurotransmitters that diminish ________________ and boost ________________ and ________________ . Nicotine also stimulates the ________________ ________________ system to release ________________ and ________________ neurotransmitters that calm ________________ and reduce sensitivity to ________________ .
91. Cocaine and crack deplete the brain's supply of the neurotransmitters ________________ , ________________ , and ________________ , and result in depression as the drugs' effects wear off. They do this by blocking the ________________ of the neurotransmitters, which remain in the nerve cells' ________________ .
92. Cocaine's psychological effects depend not only on dosage and form but also on the user's ________________ and ________________ and the ________________ .
93. Methamphetamine triggers the release of the neurotransmitter ________________ , which stimulates brain cells that enhance ________________ and ________________ .
94. The drug ________________ , or MDMA, is both a ________________ and a ________________ . This drug triggers the release of the neurotransmitters ________________ and ________________ and blocks the reabsorption of ________________ . Among the adverse effects of this drug are disruption of the body's ________________ clock, suppression of the ________________ ________________ , impaired ________________ , and slow ________________ .

**Objective 3-16:** Identify the hallucinogens, and describe their effects.

95. Hallucinogens are also referred to as ________________ . Two common synthetic hallucinogens are ________________ and ________________ .
96. The reports of people who have had ________________ are very similar to the ________________ reported by drug users. These experiences may be the result of a deficient supply of ________________ or other insults to the brain.
97. The active ingredient in marijuana is abbreviated ________________ .
98. All psychoactive drugs trigger ________________ ________________ , which helps explain both ________________ and ________________ .
APPLICATIONS:

99. Roberto is moderately intoxicated by alcohol. Which of the following changes in his behavior is likely to occur?
   a. If angered, he is more likely to become aggressive than when he is sober,
   b. He will be less self-conscious about his behavior,
   c. If sexually aroused, he will be less inhibited about engaging in sexual activity,
   d. All of these changes are likely.

100. Which of the following statements concerning marijuana is true?
   a. The by-products of marijuana are cleared from the body more slowly than are the byproducts of alcohol.
   b. Regular users may need a larger dose of the drug to achieve a high than occasional users would need to get the same effect.
   c. Marijuana is as addictive as nicotine or cocaine.
   d. Even small doses of marijuana hasten the loss of brain cells.

101. I am a synthetic stimulant and mild hallucinogen that produces euphoria and social intimacy by triggering the release of dopamine and serotonin, What am I?

102. Lyndall was in a car accident that required critical surgery to repair her damaged internal organs. During surgery, she had a sense of being outside her body, floating above the operating room. These ________________ experiences are similar to sensations of an LSD “trip.”

103. Which of the following statements concerning alcohol dependence is NOT true?
   a. Adopted individuals are more susceptible to alcohol dependence if they had an adoptive parent with alcohol dependence.
   b. Having an identical twin with alcohol dependence puts a person at increased risk for alcohol problems.
   c. Geneticists have identified genes that are more common among people predisposed to alcohol dependence.
   d. Researchers have bred rats that prefer alcohol to water.

104. Which of the following statements concerning near-death experiences is true?
   a. Fewer than 1 percent of patients who come close to dying report having them.
   b. They typically consist of fantastic, mystical imagery.
   c. They are more commonly experienced by women than by men.
   d. They are more commonly experienced by men than by women.

Objective 3-17: Explain why some people become regular users of consciousness-altering drugs.

105. Drug use by North American youth ___________________ (increased/declined) during the 1970s, then declined until the early 1990s because of increased ___________________ and efforts by the media to de glamorize drug use.

106. Adopted individuals are more susceptible to alcohol dependence if they had a(n) (adoptive/biological) parent with a history of alcohol dependence. Boys who at age 6 are (more/less) excitable are more likely as teens to smoke, drink, and use other drugs. Genes that are more common among people predisposed to alcohol dependence may cause deficiencies in the brain’s ________________ ________________ system.

Identify some of the psychological and social-cultural roots of drug use.

107. Among teenagers, drug use (varies/is about the same) across ________________ and ________________ groups.
108. Studies reveal that African-American teens have the (highest/lowest) rates of drug use. A major social influence on drug use is the ____________________ culture.

109. State three possible channels of influence for drug prevention and treatment programs.
   a. ________________________________
   b. ________________________________
   c. ________________________________

APPLICATIONS:
110. Which of the following was NOT suggested by the text as an important aspect of drug prevention and treatment programs?
   a. education about the long-term costs of a drug's temporary pleasures
   b. efforts to boost people’s self-esteem and purpose in life
   c. attempts to modify peer associations
   d. "scare tactics" that frighten prepubescent children into avoiding drug experimentation

111. Which of the following statements concerning the roots of drug use is true?
   a. Heavy users of alcohol, marijuana, and cocaine often are always on a high.
   b. If an adolescent’s friends use drugs, odds are that he or she will, too.
   c. Teenagers who are academically average students seldom use drugs.
   d. It is nearly impossible to predict whether a particular adolescent will experiment with drugs.

<table>
<thead>
<tr>
<th>Psychoactive Drug Category</th>
<th>Specific Drugs in This Category</th>
<th>Psychological Effects of These Drugs</th>
<th>How These Drugs Affect the Nervous System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depressants</td>
<td>alcohol, barbiturates, opiates</td>
<td>disrupt judgment and inhibition, induce sleep, reduce anxiety</td>
<td>decrease neural activity, slow body functions</td>
</tr>
<tr>
<td>Stimulants</td>
<td></td>
<td></td>
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<tr>
<td>Hallucinogens</td>
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STUDY TIP: This chapter discusses three major categories of psychoactive drugs, drugs that when abused may lead to clinically significant impairment or distress. Information about their psychological effects and their actions on the nervous system is best organized in the form of a chart. To help you review this material, complete the missing information in the chart below. To get you started, the first drug category has already been filled in. In combination with text Table 3.5, you should have a useful summary of substance-related disorders.