

SECTION II**Time—50 minutes**

Directions: Take approximately 50 minutes to answer *both* of the essay questions. According to the College Board directions, "It is not enough to answer a question by merely listing facts. You should present a cogent argument based on your critical analysis of the question posed, using appropriate psychological terminology." Write your essays on separate sheets of paper.

Essay 1:

Although historically nature versus nurture was considered an all-or-none proposition, most psychologists today agree that heredity and environment are both important in determining behavior and mental processes. Describe the extent to which heredity and the extent to which environment affect expression of each of the following:

- shyness
- language acquisition
- phenylketonuria
- violent behavior
- schizophrenia

Essay 2:

Yesterday when a brown bear unexpectedly appeared in his backyard, John ran into his house faster than he ever ran before.

- a. Describe how John's eye and brain enabled him to see the bear. In your description include how the eye focused the image, transduced energy, and transmitted information to the brain; identify the parts of the brain involved.
- b. Explain how the "fight-or-flight" response enabled John to run faster than ever before.
- c. Using a current theory of emotion, account for why John experienced fear rather than anger or sadness.

END PRACTICE EXAM

> Answers and Explanations

Section I

1. **B**—(Chapter 18) Conformity. Etan seems to want the group's approval and so conforms to its behavior.
2. **D**—(Chapter 5) The humanistic approach believes that people are good by nature and emphasizes the need for people to do their best and strive toward self-actualization.
3. **B**—(Chapter 13) Authoritative. Authoritative families are democratic by nature and, though there are rules, these are flexible and children grow up helping to make their own decisions and accepting responsibility for their behavior.
4. **D**—(Chapter 11) An algorithm. This is the problem-solving technique where there is an exhaustive search of all possible answers and a guaranteed solution.
5. **A**—(Chapter 8) Absolute threshold. This is the minimum stimulation at which 50% of the time Bessie can detect the sweetness in the water.
6. **D**—(Chapter 10) No longer evokes the conditioned response. Extinction is the elimination of a learned response. In classical conditioning, when the UCS is removed and the CS is repeatedly presented, eventually it will no longer produce the CR and is extinguished.
7. **C**—(Chapter 7) PET. A PET scan shows the activity in the brain and is useful in allowing doctors to see where different tasks, such as this patient's language, are processed in the brain. For most people, language is processed in the left hemisphere.
8. **A**—(Chapter 17) Psychoanalytic therapy attempts to uncover unconscious conflicts, and both dream interpretation and free association are techniques used to reach the unconscious.
9. **E**—(Chapter 12) Incentive theory attempts to use rewards to increase positive behavior, and Al's mother is trying to motivate him to do better in school.
10. **D**—(Chapter 14) Superego. According to Freudian theory, the superego is the last part of the personality to emerge and represents our moral conscience, which would be more likely to donate money to the homeless than the selfish and self-centered id, which operates on the pleasure principle.
11. **C**—(Chapter 6) Might have been due to chance. To be significant, results cannot be the results of a coincidence, but must depend on the relationship between the factors studied at least 19 out of 20 times.
12. **C**—(Chapter 6) 90 appears 3 times and is the most frequently occurring number in the set.
13. **C**—(Chapter 15) The AP test measures one's achievement or how much was learned in the year in contrast to an aptitude test, which measures potential.
14. **B**—(Chapter 9) Nicotine. Nicotine is a stimulant drug that arouses the central nervous system and causes some to have an increased sense of self-confidence.
15. **E**—(Chapter 10) By answering each e-mail, Soledad is on a continuous schedule of reinforcement. One learns more quickly under this schedule, but new behaviors are also extinguished more easily than on intermittent schedules.
16. **B**—(Chapter 17) Justin has undergone a behavior therapy known as systematic desensitization in which he unlearns a phobia and replaces it with relaxation. The procedure described also utilizes an anxiety hierarchy of progressively higher level fears involved in his phobia.
17. **B**—(Chapter 14) According to Skinner, a famous behaviorist, all behavior is learned and one can only measure observable behavior, so personality is reduced to observable behavior. Feeling, thoughts, and other mentalistic constructs cannot be measured accurately.
18. **C**—(Chapter 11) A flashbulb memory is one that is extremely vivid and emotional, and is remembered for years. Like other episodic memories, it is also likely to be partially confabulated.

The level of confidence in a memory does not make it more valid.

19. **C**—(Chapter 16) Dissociative amnesia. Dissociative amnesia is a result of memories that are too painful for the conscious memory to deal with, like the horrible sight of the death of his wife and children in this example. This would support Freud's repression theory.
20. **B**—(Chapter 10) Occur less frequently. Thorndike's Law of Effect states that behaviors that are followed by negative consequences are less likely to recur, and those that are followed by positive consequences have a higher probability of being repeated in the future.
21. **C**—(Chapter 18) Social facilitation. The chef, a master at his trade, will increase his productivity before an audience. Social facilitation occurs for well-learned tasks; an audience will positively affect one's performance.
22. **A**—(Chapter 7) Cell body. This is the part of the neuron that contains DNA in the nucleus, which directs synthesis of such substances as neurotransmitters.
23. **C**—(Chapter 13) Integrity versus despair. Erikson has eight crisis stages, and the eighth occurs in old age. This is an example of despair.
24. **B**—(Chapter 12) Facial expressions have been shown in cross-cultural studies by Paul Ekman and others to be the single most reliable indicator of emotions. Six emotions are understood universally.
25. **E**—(Chapter 13) Environments. Identical twins share the same DNA, so any difference in their behavior must be attributable to the separate environments in which they grew up.
26. **C**—(Chapter 6) Avoiding use of animals when computers are available. Although animals must be treated humanely, animals may be used in research studies when computer simulations are inadequate.
27. **C**—(Chapter 16) According to *DSM-5* one of the symptoms of attention-deficit/hyperactivity disorder (ADHD) is inattention, illustrated when Mason looks around the room while the teacher is talking. Dramatic changes are sometimes achieved when a stimulant like Ritalin is used in treatment.
28. **A**—(Chapter 18) Believe more strongly in capital punishment. Joan will succumb to group polarization, which occurs when like-minded people reinforce each other's opinions, so that any one person's is stronger than it was prior to the chat room.
29. **A**—(Chapter 11) Provide more retrieval cues. Because the correct answer is among the incorrect ones, some find it much easier to answer multiple choice questions. Fill-in and completion questions give no hints, and the student must retrieve answers without these.
30. **A**—(Chapter 10) Acquisition trials. In classical conditioning, after repeated pairings of the CS and UCS, acquisition, or learning, occurs when the CS reliably produces the CR when the UCS is not presented.
31. **A**—(Chapter 13) Preoperational. Between the ages of 2 and 6, kids are egocentric and learn through trial and error, according to Piaget. They are not yet capable of logical thought.
32. **B**—(Chapter 7) Reflex. Blinking, sneezing, and flinching are all reflexive behaviors. When an object comes too close to our eyes or there is pepper under our nose, we will automatically blink or sneeze.
33. **D**—(Chapter 17) Rational Emotive Therapy or RET, developed by Albert Ellis, is a cognitive-behavioral treatment effective with pessimistic clients like Stephen, whose problems might stem from irrational and illogical thought patterns. RET is a somewhat combative approach that counters illogical assumptions like Stephen's, that since he has two divorces, no woman will ever love him again.
34. **D**—(Chapter 12) An approach-approach conflict is characterized by a decision that must be made between two attractive options. If Delia views both prestigious colleges as attractive, her decision involves approach-approach conflict.
35. **A**—(Chapter 9) Consciousness. Alpha waves are produced when a subject is relaxed, and beta waves are characteristic of an alert state of consciousness.

36. **B**—(Chapter 13) Continuity vs. discontinuity is a controversy over whether human growth patterns follow a gradual, steady course (continuity), or whether there are abrupt markers that cause intermittent growth patterns. Stage theorists such as Piaget and Freud support the discontinuous pattern theory.
37. **B**—(Chapter 14) Carl Jung. Jung, like Freud, believed that the unconscious mind determined much of our behavior. Jung also thought the collective unconscious filled with archetypes was a universally inherited part of our nature that explained common themes in literature and world religions. Individuation is his personality goal of balancing out the opposites in one's personality, like introversion and extraversion.
38. **E**—(Chapter 16) Hallucinations are perceptual experiences that occur in the absence of external stimulation of the corresponding sensory organ. Hearing voices when they are not present could be a result of either schizophrenia or hallucinogenic drugs.
39. **B**—(Chapter 11) Mnemonic device. Stella's memory aid is using the first letter of each planet in a series and completing a sentence with words beginning with those letters.
40. **E**—(Chapter 13) Fetal alcohol syndrome is a disorder caused by prenatal alcohol use by the mother, which can lead to both physical and cognitive abnormalities in the developing child. A teratogen is any harmful substance (drug or virus) used during the prenatal period that can cause birth defects.
41. **B**—(Chapter 10) A conditioned stimulus. The two are repeatedly paired together, and the conditioned stimulus reliably comes to predict the unconditioned stimulus, which produces the unconditioned response.
42. **D**—(Chapter 12) The exhaustion stage. Usually stressors are dealt with during the second stage of resistance, but if the stressors are prolonged, the immune system becomes unable to protect us from disease and infection.
43. **D**—(Chapter 16) Compulsive. Jeanette suffers from one of the common problems of compulsives—checking behavior. A compulsion is an action repeated over and over even though it serves no useful purpose.
44. **D**—(Chapter 8) Timbre. Timbre is the complexity of sound determined by its composition of several frequencies. Carlos can thus distinguish between the two instruments.
45. **C**—(Chapter 12) Hypothalamus. Many motivated behaviors, including hunger, thirst, and sex, are associated with stimulation of the hypothalamus. Stimulation of the lateral hypothalamus in a rat, for instance, will be a signal to initiate eating behavior.
46. **B**—(Chapter 17) SSRIs like Prozac and Paxil seem to increase the availability of serotonin at postsynaptic receptor sites by preventing the reuptake of the neurotransmitter by presynaptic neurons, which elevates the mood of the patient suffering from depression.
47. **C**—(Chapter 6) Not going to lecture classes, reading the review book, and watching "Discovering Psychology." The independent variable is the one manipulated by the experimenter. Jared manipulates this variable in his experiment to gather evidence that students can do just as well in the course without attending lectures.
48. **C**—(Chapter 11) Failure to encode. Like John, most of us see different coins and bills every day, but our failure to pay close attention to these stimuli results in a failure to encode them into our long-term memories.
49. **A**—(Chapter 15) Naturalistic intelligence, according to Gardner's Theory of Multiple Intelligences, would enable Harry to distinguish between edible leaves and insects because of his familiarity with plants and insects in the environment.
50. **B**—(Chapter 13) 12 in females only. Menarche is the first menstrual period for females, the onset of the ability to reproduce.
51. **C**—(Chapter 17) Amy is probably engaged in a humanistic therapy session. Client-centered therapists would encourage Amy to direct the therapy process while the therapist engages in active listening.

52. **E**—(Chapter 7) Right cerebral cortex. Neural pathways for facial recognition are found in the right temporal lobe.
53. **E**—(Chapter 8) Proximity. The three letters c-a-r are together and thus our attention is drawn to that combination first due to the closeness of the letters and because they form a familiar word.
54. **C**—(Chapter 10) Money is a secondary reinforcer we learn to be reinforced by. Food, water, and sex are all primary reinforcers or biologically significant and things we are naturally reinforced by.
55. **D**—(Chapter 7) Sodium ions into the axon. Positively charged sodium ions rush into the axon, depolarizing the membrane and transmitting an action potential. The neuron “fires.”
56. **C**—(Chapter 5) Dr. Bonneau is an industrial/organizational or I/O psychologist interested in improving morale in the industrial setting.
57. **B**—(Chapter 11) Confirmation bias. Shafi looked for evidence to support his beliefs and failed to try to disconfirm his belief. When he found the two male scores of 100%, he believed even more that his conclusion was correct.
58. **B**—(Chapter 13) Crystallized intelligence refers to intellectual ability that reflects concrete knowledge or facts, which tends to increase rather than decrease with age. The more abstract reasoning that is characteristic of fluid intelligence declines in later years.
59. **A**—(Chapter 10) Delayed. In delayed conditioning, the CS is presented before the UCS in acquisition trials, and the CS then becomes a good predictor of the UCS to come.
60. **D**—(Chapter 13) Both the expense and the fact that subjects drop out over time are two disadvantages of the longitudinal approach. Cross-sectional research has the disadvantage of the cohort effect or the problem of different ages being exposed to different learning environments because of their date of birth.
61. **D**—(Chapter 18) The reciprocity norm. This is a compliance technique used by groups. Brittany feels obligated to go along with a request for a small donation after she has used the stickers the organization sent her.
62. **A**—(Chapter 7) The path over which the reflex travels typically includes a receptor, sensory or afferent neuron, interneuron, motor or efferent neuron, and effector.
63. **D**—(Chapter 11) Grammar. Typical of a 3-year-old, the child without formal training intuits the “ed” rule for making the past tense. This is called overgeneralization.
64. **A**—(Chapter 16) Seasonal affective disorder (SAD) is a recurrent depressive disorder characterized by depression, lethargy, sleep disturbances, and craving for carbohydrates that generally occurs during the winter, when the amount of daylight is low. It is sometimes treated with exposure to bright lights.
65. **D**—(Chapter 7) Move his left hand. The right hemisphere controls Mr. Gordon’s left side, and the part in the back of the frontal lobe is the motor cortex.
66. **A**—(Chapter 15) Content validity. Content validity measures whether the test “covers” the full range of the material, which is not met by testing only the four areas mentioned.
67. **C**—(Chapter 18) Social loafing is the tendency for individuals to put less effort into group projects than individual projects for which they are accountable.
68. **A**—(Chapter 5) The purpose of behavioral acts. James and other members of the functionalist perspective were concerned with how an organism uses its perceptual abilities to adapt to its environment more than the structuralists, who looked at the individual parts of consciousness.
69. **C**—(Chapter 14) An external locus of control. Julian Rotter’s research says that externals do not believe that they control what happens to them, and when good things do happen, it is more a matter of luck than individual achievement or effort.
70. **A**—(Chapter 16) Panic disorder is the only choice that is classified as an anxiety disorder in *DSM-5*.

71. **D**—(Chapter 12) Love. All of the other choices are among the six primary facial expressions identified cross-culturally. Sadness and happiness round out the six.
72. **B**—(Chapter 7) Three copies of chromosome 21. With three copies of chromosome 21 in their cells, individuals are typically mentally retarded and have a round head, flat nasal bridge, protruding tongue, small round ears, a fold in the eyelid, poor muscle tone, and poor coordination.
73. **D**—(Chapter 10) Omission training. After disruptive behavior is emitted, the child is removed from the classroom (seen as a reward taken away from the learner), thus decreasing the original behavior.
74. **B**—(Chapter 9) Dreams result from the mind's attempt to make sense of random neural activity from the brainstem. This theory says that dreams do not have symbolic meaning.
75. **C**—(Chapter 12) Repetitions of an emotion-arousing event strengthen the opposing emotion. Fear accompanies the first time most people jump out of an airplane with a parachute, but on successive jumps the fear decreases and the joy increases.
76. **B**—(Chapter 18) The fundamental attribution error. When judging other people's behavior, we are likely to overestimate personal factors—an impatient clerk—and underestimate situational factors—how rude customers had been to her. When judging our own behavior, we do not make this same error.
77. **B**—(Chapter 16) Behaviorists. Maladaptive behavior is learned and, therefore, can be unlearned through behavior therapy.
78. **A**—(Chapter 11) Divergent thinking occurs with brainstorming. Many ideas are offered without censorship, and creativity is usually enhanced.
79. **D**—(Chapter 14) Stable sources of individual differences that characterize an individual, based on an interaction of nature and nurture. Eysenck characterized personality along three stable dimensions: extroversion, neuroticism, and psychoticism.
80. **D**—(Chapter 6) Her sample may not have been representative of the population. People who were unhappy with their children may have been more inclined to respond to the columnist than those who were happy. Participants were not randomly selected.
81. **C**—(Chapter 13) Observation and imitation of significant role models. One learns his or her gender role, according to social learning theory, by observing parents and friends interact and then copying those behaviors that seem most rewarded.
82. **E**—(Chapter 18) Black teenagers are superior to white teenagers. Ethnocentrism is the belief that one's own group (ethnic, racial, country) is superior to all others, and Aisha is likely to have similar racial pride.
83. **C**—(Chapter 8) Von Bekesy proposed that the differences in pitch (frequency) result from stimulation of different areas of the basilar membrane.
84. **D**—(Chapter 13) Sociocultural. Vygotsky developed a theory he called the zone of proximal distance (ZPD), which measures one's intelligence as the difference between what someone can do with the help of others (sociocultural) and what one can do alone. His view supports the nurture side, while Piaget's is contrastingly on the nature side of the nature-nurture controversy in cognitive development.
85. **C**—(Chapter 7) Verbal, analytic, and mathematical processing are usually done primarily on the left side of the cerebral cortex. This side of the brain is more logical and linear in problem solving than the more creative and artistic right side of the brain, which is specialized for visual/spatial reasoning.
86. **C**—(Chapter 10) The cognitive revision of Pavlovian classical conditioning is called the contingency model. Rescorla theorized that the predictability of the UCS following the presentation of the CS determines classical conditioning in contrast to Pavlov's contiguity model based on timing between the appearances.

87. **A**—(Chapter 14) Nomothetic theory analyzes personality characteristics according to universal norms of the group, in contrast to idiographic theory, which looks at the individual.
88. **A**—(Chapter 12) Relative deprivation theory is based on a cognitive model of motivation. How Tamika perceives her situation is changed once she works with those who have even less than she does.
89. **E**—(Chapter 15) Tests for which a person's performance can be compared with a pilot group. The pilot group, a representative group of the population to be tested, helps to establish a baseline so that future performance of groups can be meaningfully compared and defined.
90. **A**—(Chapter 7) Acetylcholine is a neurotransmitter that causes contraction of skeletal muscles. In addition to this somatic task, it also helps regulate heart muscles, is involved in memory, and transmits messages between the brain and spinal cord. Alzheimer's is associated with a lack of this neurotransmitter.
91. **A**—(Chapter 13) Turning their heads toward stimuli when touched on their cheeks. This is one of a group of reflexive actions that is innate and present at birth.
92. **A**—(Chapter 6) The correlation coefficient is a statistical measure of the degree of relatedness between two sets of data that range from a +1 positive correlation (both increase together) to a -1 in this case, which represents a complete negative correlation (as one increases, the other decreases).
93. **D**—(Chapter 8) Electrical stimulation. Substance P is blocked by the endorphins, which are released by the electrical stimulation, thus blocking the pain sensation, according to the gate-control theory of pain.
94. **A**—(Chapter 11) Anchoring effect. Individuals are influenced by a suggested reference point or range, particularly when uncertain what amount to give. They base their giving on the "acceptable" range provided and thus will give more when the starting value is \$25 rather than the "high" amount being \$25.
95. **C**—(Chapter 8) Pressure receptors. A push is a form of mechanical energy. Mechanical energy is changed to the electrochemical energy of a neural impulse by pressure receptors of the skin.
96. **E**—(Chapter 8) Itch. Somatosensation is the perception of skin sensations (touch), which include cold, warm, pain, and pressure.
97. **B**—(Chapter 12) Increase in salivation. When one is aroused by a stressful situation like standing up and giving a speech in front of others, dry mouth, or a decrease in salivation, is often present.
98. **A**—(Chapter 8) Too much curvature of the cornea and lens. In nearsightedness, light rays are focused in front of the retina, causing distant objects to appear blurry.
99. **A**—(Chapter 9) Dissociation. According to Hilgard, a person undergoing hypnosis for pain management may feel little pain because the brain channel that registers pain is separated from channels registering the voice of the hypnotist. But a "hidden observer" can still observe his or her own pain without consciously experiencing any suffering.
100. **A**—(Chapter 6) Meta-analysis. This approach would compare and contrast all the studies as a group and thus determine trends and provide a greater understanding of the entire body of research on the herb and its effects on memory.

Section II

Scoring Rubric for Essay 1

This is a 10-point essay: 5 points are awarded for explaining at least one argument for the nature side of each of these issues and 5 points for explaining at least one argument for the nurture side of each of these.

Point 1: Shyness (Nature)

- Kagan's longitudinal research on inhibited children
- strong correlation between inhibited parents/grandparents and shy children
- cultural differences as a product of genetics

Point 2: Shyness (Nurture)

- 25% of Kagan's children changed temperament by adolescence
- collectivist societies promote modesty and shyness, respect for authority
- gender role socialization rewards females for shyness
- abused children, others with low self-esteem, or socially rejected may learn shyness
- according to Zimbardo, 50% of Americans self-report shyness
- cognitive behavioral therapy is successful in helping to overcome shyness

Point 3: Language acquisition (Nature)

- Noam Chomsky's "language acquisition device" in which grammar switches are turned on
- all children, including deaf children, babble at around 4 months and develop language in a distinct pattern: cooing, babbling, babbling only phonemes of their language group, holophrases, telegraphic speech
- overgeneralization of grammar rules by age 3, not influenced by formal training
- critical period hypothesis

Point 4: Language acquisition (Nurture)

- Skinner's argument of language acquisition through shaping
- deaf speech hindered because of an inability to hear proper sounds
- all children babble some 100 phonemes at 6 months, but by 10 months they use the phonemes only found in their language group, which obviously have been reinforced
- Whorf's language relativity hypothesis that languages shape the way we think
- failure of isolated children (such as Genie) to develop language

Point 5: Phenylketonuria (PKU) (Nature)

- inherited error of metabolism
- recessive gene, must have two alleles to be expressed
- high levels of phenylalanine lead to severe retardation and other problems

Point 6: Phenylketonuria (Nurture)

- screening at birth can alert adults to lack of enzyme and need to avoid phenylalanine
- diet eliminating sources of phenylalanine (such as proteins, nuts, aspartame, and legumes) prevents expression of phenylketonuria

Point 7: Violent behavior (Nature)

- Freud's aggression instinct which leads to violent behavior
- higher testosterone levels or low levels of serotonin may predispose violence
- Delgado's stimulation studies

- adoption studies indicating violent children more like biological parents than adoptive parents

Point 8: Violent behavior (Nurture)

- Bandura's social learning theory, Bobo doll studies
- correlation between violence and video game behavior
- negative consequence of violent upbringing—most abusers were abused by their parents
- receiving or expecting rewards for aggression—gang behavior and deindividuation

Point 9: Schizophrenia (Nature)

- exposure during pregnancy to flu virus and other teratogens leads to enlarged ventricles in brain
- age of expression seems to be 17–25 for most subtypes
- dopamine hypothesis, response to antipsychotic drugs that decrease dopamine
- high probability that monozygotic twin of twin with schizophrenia will develop schizophrenia
- high incidence of schizophrenia in close relatives

Point 10: Schizophrenia (Nurture)

- diathesis-stress model requires an environmental releaser
- milder cases of schizophrenia in less stressed twins
- Vietnam veteran syndrome—right age of onset and stressor strong enough

Sample Full-Credit Essay

The nature/nurture controversy has been one of the more enduring themes of psychological research. Although it used to be an either/or question of heredity or environment, now most psychologists agree with an interactionist point of view.

Jerome Kagan did some interesting longitudinal research with infants. By 2 months of age, 15%–20% of children in his sample were already expressing inhibited behavior in the form of startle reactions to new stimuli. In their teens, 75% of his original group of inhibited kids were still inhibited. American parents who seem to value more extraverted behaviors were unable to change their children's nature. Strong correlations have been found between inhibited children and parents, and grandparents as well.

Many people seem to learn shyness from abusive parenting styles, negative experiences in school, and rejection in social situations as both children and adults. Some 50% of Americans self-report shyness. Philip Zimbardo has spent much of his life conducting research and therapy for shyness. Cognitive-behavioral therapy has been successful in helping formerly shy people to learn new social skills and in reinforcing more positive self-statements.

Language acquisition has also had its nature and nurture supporters. Prominent on the nature side is linguist Noam Chomsky, who argues for a language acquisition device in the brain. He cites evidence of a progressive sequence of language acquisition from cooing, babbling, holophrases, and telegraphic speech to even overgeneralization of grammar rules unaffected by learning. Chomsky has indicated a critical period during which a child must be exposed to language for this maturational process to occur. Although B. F. Skinner would agree with the steps in the language acquisition process, he disagrees with Chomsky and believes that language is acquired through shaping and reinforcement. Although all children babble some 100 phonemes at about 6 months of age, at 10 months most are only using the phonemes of their own language, some 40 in English that have been reinforced.

Phenylketonuria or PKU is an inherited problem of metabolism. In order to be expressed, two recessive alleles for this trait must be present. Today, screening for this metabolic disorder is done at birth, and the mental retardation and other problems associated with it in the past have been considerably altered. Following a restricted diet, at least until adolescence, can prevent expression of phenylketonuria. The diet eliminates proteins, nuts, and dairy products and severely restricts starches like bread and potatoes.

There are many theories on both the nature and nurture side about violent behavior. Both Freud and Lorenz believed that aggression is innate and the frustration-aggression hypothesis claims that violent behavior is a natural product of built-up frustration. High testosterone levels and lower serotonin levels have also supported a biological basis for violent behavior. Some studies have indicated that children more closely mimic their violent biological parents than their adopted parents. On the nurture side, Bandura's social learning theory and Bobo doll studies indicate that violent behavior can be learned through modeling and imitation. Recent studies indicate that children who play violent video games are more likely to display violent behavior than those who do not play such games. Gangs who commit violent crimes reward similar behavior by their members and punish those who do not conform to these norms. Finally, in a highly aroused state, many people fall into a mob violence situation, as soccer matches and social protest marches have shown, exemplifying deindividuation.

Some psychologists also think the causes of schizophrenia are biological, whereas others think its causes are environmental. Schizophrenia is a devastating mental disorder involving delusional thinking, sensory hallucinations, and other psychotic symptoms. High levels of dopamine that can be treated with antipsychotic drugs in many cases seem to support the biological origin of this disease. Enlarged ventricles of the brain can be seen in MRIs or at autopsy. The disorder is most likely to express itself during the 17- to 25-year age period. Some theorize that mothers were exposed to flu-like viruses during their second trimester and that these factors lie dormant in the brain until late adolescence. Those arguing on the nurture side cite the diathesis-stress model and the double-bind situation. According to the double-bind theory, bad parenting makes the child confused about how to perceive the world. Twin studies in which one twin exhibits severe symptoms of schizophrenia and the other milder symptoms or none at all may be a result of environmental factors and stress levels—either real or perceived—that the two experience.

Scoring Rubric for Essay 2

Five points are to be awarded for the sensory and brain issues addressed in a, 2 points for explaining the "fight-or-flight" theory in b, and 1 point for correctly identifying and explaining a current theory of emotion in c.

Point 1: Eye focusing the image—cornea→pupil→lens→retina

Point 2: Eye transducing energy—rods and cones are photoreceptors that convert light energy to energy of the electrochemical impulse

Point 3: Transmission of information to the brain—from the retina→optic nerve→thalamus or brain

Points 4

and 5: Mention of at least two brain parts involved in visual processing of the bear: optic chiasma where information from one-half of each eye crosses to opposite hemisphere; thalamus as sensory relay and for color processing; occipital lobes or feature detectors in visual cortex; association areas of the cortex integrate sensory information to enable perception of bear

- Point 6:* Explanation of the “fight-or-flight” response—sympathetic nervous system increases heart rate, pulse, and blood pressure and slows digestion making energy available to muscles
- Point 7:* Pituitary signals adrenal glands to secrete adrenaline, which gives the extra surge of energy to run faster than ever
- Point 8:* Description of either Schachter’s two-factor theory or Lazarus’s cognitive appraisal theory or Ekman’s facial feedback system or LeDoux and role of amygdala

Sample Essay

Seeing the brown bear in his backyard obviously caused an alarming sensory experience for John, which was quickly translated into quick action thanks to his sympathetic nervous system and the expression of fearful emotion. Light rays bounced off the bear’s brown coat and entered John’s eyes through the cornea, which begins the process of focusing. Next the light passes through the pupil controlled by the iris. John’s eyes open very wide! Next the light is focused by the curved lens, which changes shape in relation to the distance of the bear and inverts the bear’s image to focus on the retina on the back part of the eye where receptors (rods and cones) are stimulated. The rods and cones transduce the light energy into the electrochemical energy of a neural impulse. The brown color stimulates the cones especially concentrated in the fovea, which is where John’s best acuity is. If enough cells fire, the bipolar cells are activated and finally the ganglion cells are activated. The axons of the ganglion cells in each eye form the optic nerves, which send the image to the thalamus in the brain (the sensory relay), which then sends it on to the occipital lobes where feature detectors will help John to perceive the dangerous image of the bear.

The “fight-or-flight” reaction is the physiological arousal of the body or sympathetic nervous system in response to a stressor (the bear) that enables John to get away fast. When John perceived the bear, messages were sent to his organs, glands, and muscles. John’s heart rate and blood pressure immediately accelerated, and his breathing deepened. The pituitary gland also secreted hormones that commanded the adrenal glands to secrete adrenaline (epinephrine), which helped give him the extra energy to run faster than he had ever done.

There are several contemporary theories that are helpful in explaining why John felt fear and not anger or sadness. Schachter’s two-factor model explains that first John felt the physiological arousal as explained earlier. He could identify the reason for this arousal (the bear) and knowing that bears can be very dangerous, he felt the emotion of fear. Lazarus’s model says that a thought must come before any emotion or physiological arousal. John recognized that the bear could kill him, and then he could actually experience the fear. Ekman would explain the fear as the experience of changes in his facial muscles. When reacting to the bear, John’s eyes widened, his teeth clenched, and these muscle cues alerted his brain to interpret this as fear. Anger or sadness would involve different muscles.

Scoring and Interpreting Practice Exam 2

Now that you've finished Practice Exam 2 and scored your answers, you can examine your results. Did you get all of the questions correct for a particular chapter? That's excellent. You don't need to spend much time going over that topic. Did you answer several questions incorrectly for a particular chapter? Go over that material carefully.

You can *roughly* equate your results to an AP test score. To put an approximate AP score on the results of your practice test, follow these steps:

1. Count the number of Section I questions you answered correctly.

Number correct _____

Copy this Section I score on the line to the right.

Section I weighted score: _____

2. Using the score rubrics,
 - A. determine your score for Essay 1 _____
 - B. multiply Essay 1 score by 2.5 _____
 - C. determine your score for Essay 2 _____
 - D. multiply Essay 2 score by 3.125 _____
 - E. add scores for Essay 1 and 2 _____

Copy this Section II score on the line to the right.

Section II weighted score: _____

3. Add your scores for Section I and Section II. Total composite score: _____
4. Since composite score ranges vary from test to test, this is only a very rough estimate. Match your score from #3 with these:

Composite Score Range	Rough Estimate of AP Score
104-150	5
90-103	4
68-89	3
50-67	2
0-49	1