

**Exam 1**  
**Psych W1 – Spring 2014 – UC Berkeley**

1. If we explain the aggressive act of someone by stating that “he wanted to be seen as tough”, psychologists would call this a \_\_\_\_\_ explanation of the behavior.
- a. cognitive
  - b. motivational\*
  - c. emotional
  - d. attitudinal

%Correct    %Wrong  
**68.85%**    **31.15%**

The answer to this question was motivational. This is because motivational explanations for behaviors focus on goals and needs. The other explanation that is often incorrectly identified here, cognitive explanations, is not correct because cognitive explanations for behaviors focus on thoughts and understanding. The primary focus on this explanation here is desires, not knowledge.

2. If Greg is attempting to explain memory at only the biophysical level instead of the psychological level or societal level, one might say that he is trying to use \_\_\_\_\_ on this cognitive activity.
- a. reductionism\*
  - b. expansionism
  - c. biofeedback
  - d. spiritualism

%Correct    %Wrong  
**77.05%**    **22.95%**

Reductionism is an attempt to explain a topic of psychology at its most basic form. In essence, whenever we attempt to explain a behavior or psychology related phenomenon in narrower and narrower ways, we are using this model. Expansionism attempts to essentially do the exact opposite, and both biofeedback and spiritualism really have nothing to do with this question.

3. The first researcher to create a scientific laboratory dedicated to studying perceptual processes was
- a. William James.
  - b. Wilhelm Wundt.\*
  - c. Socrates.
  - d. Johannes Fechner.

%Correct    %Wrong  
**96.72%**    **3.28%**

William James was one of the first researchers in psychology to write an introductory book about psychology, Socrates is considered by many to be one of the first individuals that could be called a psychologist, but Wilhelm Wundt is credited for setting up the first psychological lab in Leipzig, Germany in his attempt to understand perceptual processes.

4. What can a psychiatrist do that a clinical psychologist cannot do, in most states?
- a. prescribe drugs\*
  - b. conduct research
  - c. analyze dreams
  - d. hypnotize people

%Correct %Wrong

98.36%

1.64%

Though most clinical psychologists and psychiatrists no longer analyze dreams and hypnotize individuals, they both technically can do this. They also both have the ability to, and often do, conduct research throughout their careers. The only thing that clinical psychologists cannot do in most states—and psychiatrists have the ability to do because of their training and education—is prescribe medicine.

5. In the reflex arc, neurons that communicate with each other within the brain are described as
- a. afferent neurons.
  - b. cellular neurons.
  - c. interneurons.\*
  - d. efferent neurons.

%Correct %Wrong

78.69%

21.31%

The reflex arc is a basic connection between neurons that involve three types of neurons. The afferent neurons, primarily linked to the sensory system, are activated by a stimulus. This starts the arc by having the afferent neurons send a message to interneurons, primarily located central nervous system. These interneurons connect to and communicate with efferent neurons, which are primarily linked to the motor system. After receiving the message, these efferent neurons then instigate the motor response to the stimulus. This reflex arc is considered a simplified explanation for how our basic reflexed occur.

6. The nervous system cells that do not communicate like neurons but are known to aid our neurons in many different ways, are called \_\_\_\_\_.
- a. transient neurons
  - b. glia cells\*
  - c. ganglia cells
  - d. neurotransmitters

%Correct %Wrong

96.67%

3.33%

Glia cells are a collection of different cells located throughout our nervous system. Some glia cell, also called glial cells in other textbooks and classes, are responsible for the maintenance and cleaning of the nervous system. Others are responsible for myelination, a process that is critical for fast communication between our neurons. And a third set is responsible for coordinating the communication of neurons. They don't use neurotransmitters like neurons, but still play a critical role in the communication process.

7. Neurons communicate with each other through the use of
- hormones.
  - neurotransmitters.\*
  - interneurons.
  - electrical impulses.

%Correct %Wrong  
80.33% 19.67%

Neurons communicate with organs through our bloodstream with the release of hormones. Neurons generate electrical changes in the surrounding environment through the process of the action potential. To communicate from neuron to neuron, their tool of communication is always the neurotransmitter.

8. The primary motor cortex is located on one of the \_\_\_\_\_ of our cerebral cortex.
- sulci
  - gyri\*
  - neuronal fields
  - brainstems

%Correct %Wrong  
55.74% 44.26%

Our brainstem, though important for neural functioning and communication does not house the primary motor cortex. Sulci are the ravines of our brain. Gyri are the bulges in our brain. The primary motor cortex is located on one of the gyri found in the ventral portion of our frontal lobe.

9. Which of the following individuals is operating under the doctrine of modality in neuroscience?
- Tina, who is attempting to find the nerve path that travels from our arm to our spinal cord.
  - Lizette, who is studying the process of memory by having people memorize lists.
  - Reyna, who is attempting to find the specific area of the brain used to create music.\*
  - Weiran, who is struggling to find the pathway within the brain that allow us to create coherent sentences.

%Correct %Wrong  
34.43% 65.57%

The doctrine of modality of focuses on the idea that there are specific regions of the brain that are associated with specific functions of the mind. The only item listed above that focuses on a region of the brain, not a nerve path or mental function, is the one that discusses finding a region of the brain associated with music.

10. We use the homunculus in neuroscience in order to represent
- the proportional surface areas of the primary motor and sensory cortex that are dedicated to different body parts.\*
  - the weird way that people perceive themselves in the mirror.
  - the amount of neurons that we have in the different regions of our brain.
  - the representation of what we would physically look like if our genes were not to interact with the environment.

%Correct %Wrong  
78.69% 21.31%

The homunculus is a theoretical character that is used by neuroscientists to represent the proportions of surface of our brain that are dedicated to the different body parts found in our sensory and motor systems. In particular, the surface area found in our primary motor and somatosensory cortexes. These surface area differences have also been directly linked to differences in the density of sensory and motor neurons found in the body parts that are associated with each region of the brain.

11. Someone that cannot speak coherently due to damage of a region of their brain associated with language is struggling with what we call \_\_\_\_\_.

- a. dementia
- b. a psychological break
- c. aphasia\*
- d. ataxia

%Correct %Wrong

98.36%

1.64%

Dementia deals with the inability to comprehend reality or the stimuli of the environment. A psychological break is usually identified with a distortion of memory or consciousness. Ataxia deals with the inability to move the body correctly because of some type of neurological damage. Aphasia is the term used for language deficiencies caused by some type of neurological damage.

12. Which statement about the two hemispheres of the brain is TRUE?

- a. Most individuals have a slightly larger right hemisphere.
- b. Most individuals have a slightly larger left hemisphere.\*
- c. Our right and left hemispheres are usually identical in size.
- d. Everyone has one hemisphere that is larger than the other, but it is usually the activities and occupation of a person that dictates which will be larger.

%Correct %Wrong

31.15%

68.85%

Though we are still not sure why this is the case, we typically find that the left hemispheres of most individuals are indeed slightly larger than the right hemispheres. This is covered extensively in the lecture on the hemispheres. It is also discussed when examining why language function is primarily housed in the left hemispheres of our brain.

13. If we sever the \_\_\_\_\_ of an individual, we find that the two hemispheres cannot communicate with each other effectively and contralateral communication becomes difficult.

- a. cerebellum
- b. frontal lobe
- c. corpus callosum\*
- d. midbrain

%Correct %Wrong

90.16%

9.84%

The corpus callosum is one of three bands in the main portion of our central nervous system that connect the left and right hemispheres of our brain together. It is considered the primary band that allows the left and right regions of the cerebral cortex to communicate with each other during the processes of vision, thought, hearing, and other important daily mental activities.

14. Language is often housed in the \_\_\_\_\_ hemisphere. Many researchers have proposed that this is most likely because of \_\_\_\_\_.

- a. left; our tendency for right handedness\*
- b. right; our motor system occupies the majority of the space in the left hemisphere
- c. left; our memory systems feed to the left hemisphere
- d. right; random events that occurred thousands of years ago

%Correct %Wrong

40.98% 59.02%

The answer for this question was A. Our motor system is controlled by contralateral communication, and since most people are right-handed, the majority of us have larger left hemispheres than right hemispheres. Many neuroscientists and evolutionary scientists argue that it's not just chance that caused our left hemisphere to control our dominant hand AND language. The issue with this is the fact that we don't know why it was the left hemisphere instead of the right for both.

15. The researcher Wilder Penfeld argued for the localist view of memory in his famous, and very controversial, research on "grandmother neurons". To find these neurons, Penfeld

- a. removed different regions of the brains of animals.
- b. studied elderly individuals that struggled with dementia.
- c. had people describe their grandmothers while in an fMRI machine.
- d. stimulated different regions of the brain with electrical charges.\*

%Correct %Wrong

72.88% 27.12%

Penfeld's controversial research did indeed involve him stimulating different areas of the brain, in particular the hippocampus, to determine if there were specific memories attached to different portions of the brain. Though we have struggled to replicate the work of Penfeld, his research was celebrated at the time as conclusive proof for the localist view of memory. Which, could be seen as another attempt to use the doctrine of modality to explain a psychological phenomenon.

16. Proof for the process of \_\_\_\_\_ can be easily seen when we study individuals that have a severed digit (finger, toe, etc.) reattached shortly after it has been removed.

- a. neurogenesis
- b. neural plasticity\*
- c. incomplete damage
- d. the "use it or lose it" phenomenon

%Correct %Wrong

47.54% 52.46%

Neurogenesis involves the regeneration of cells that have died. The use it or lose it phenomenon deals primarily with the concept of synaptic pruning that is done by the brain in order to remove unused neurons and neural connections. Neural plasticity, the nervous system's ability to move, re-structure, and re-assign neurons, is what is typically associated with this phenomenon that can occur after the severing of a digit that is quickly reattached.

17. What do a neuron's dendrites do?

- a. receive information from other neurons\*
- b. conduct information toward muscles or other neurons
- c. contain the chromosomes
- d. synthesize new proteins

%Correct %Wrong

95.08% 4.92%

Dendrites are the receptor section of all neurons. They extend from the cell body towards synapses or open gaps. It is their job to pick up information from either adjacent neurons or stimuli in the environment and convert that information into a neurological message that allows the neuron to activate or remain dormant, depending upon the message that the dendrite receives.

18. If an increase in one variable is not associated with any consistent increase or decrease in a second variable, then the correlation between the two variables is

- a. positive.
- b. negative.
- c. zero.\*
- d. uncertain.

%Correct %Wrong

78.69% 21.31%

Correlation strength deals with how well two variables go together. Correlation direction (positive, zero, negative) deals with the relationship between respective changes in these variables. In positive correlations, when one variable is high for an individual, a second variable is also likely to be high, and vice versa. In zero correlations, there is no noticeable relationship between the level of one variable and the level of a second variable. In negative relationships, when one variable is high for an individual, the second variable tends to be low, and vice versa.

19. Which of the following methods leads to conclusions about cause and effect?

- a. correlation
- b. experiment\*
- c. case study
- d. naturalistic observation

%Correct %Wrong

67.21% 32.79%

In all but the experiment answers listed above, each research design is dedicated to looking for some connection between variables. However, since there is no control and/or manipulation in the 3 other responses, causation is something that cannot be determined in correlation studies, case studies, and naturalistic observations. That does not mean that these research designs have no value, you simply cannot determine causation through them.

20. Dr. Rodentz deprives rats of food for different lengths of time and then records how long each rat takes to reach food at the end of a maze. The time needed to reach the food is the

- a. dependent variable.\*
- b. normal distribution.
- c. inferential statistic.
- d. independent variable.

%Correct %Wrong

80.33% 19.67%

In experimental studies, the variable that is being manipulated is called the independent variable. The variable that is theoretically being impacted as a result of the manipulation of the independent variable—in this case the time needed to reach the food—is called the dependent variable. This can easily be remembered by assessing which of these two variables has levels that seem to depend upon changes to the levels of the other variable.

21. On the first test, the mean is 70, the standard deviation is 5, and your score is 80. On the second test, the mean is 70, the standard deviation is 15, and your score is 85. Compared to other students, how well did you do on the two tests?
- better on the first test than on the second test\*
  - better on the second test than on the first test
  - equal on both tests
  - Not enough information is given to answer the question.

%Correct %Wrong

81.97% 18.03%

In the first test, you were two standard deviations above the mean. That means that you did roughly better than nearly 95% of the population. In the second test, though you still did better than the average, your score was only one standard deviation above the mean. This means that you did roughly better than 68% of the population.

22. Which of the following statements about reflexes is FALSE?
- Reflexes involve single muscles or at least only a few muscles
  - All reflexes are initiated by a stimulus
  - Reflexes do not involve higher cortical areas
  - Though humans are born with reflexes, they disappear by childhood\*

%Correct %Wrong

86.89% 13.11%

The first three statements to this question are all true. Reflexes indeed involve only small clusters of muscles. They are all initiated by a stimulus and once triggered, must be initiated. And they indeed do not involve the higher cortical areas (the cerebral cortex). The fourth one, though true for some reflexes, is not true for all. Reflexes like coughing, sneezing, blinking, and many others are reflexes that stick with us throughout our lifespan.

23. Konrad Lorenz's work with Greylag Geese highlighted the importance of \_\_\_\_\_ in instincts.
- learning
  - critical periods\*
  - complex mechanisms
  - prior exposures

%Correct %Wrong

63.93% 36.07%

Lorenz did a series of interesting studies with goslings to show how the process of imprinting works. In his most notable study, he created a situation where a gaggle of goslings were exposed to him immediately after birth instead of their mother. From this exposure, these goslings were then imprinted to him and treated him as a parental figure throughout their lives. This showed how important exposure to a stimulus can be during a specific period of our life—which is the essence of the concept of critical periods.

24. What is a conditioned response?
- an automatic, unlearned response to the unconditioned stimulus
  - a learned response to the unconditioned stimulus
  - an automatic, unlearned response to the conditioned stimulus
  - a learned response to the conditioned stimulus\*

%Correct %Wrong

73.77% 26.23%

Conditioned responses are a part of classical conditioning. Conditioned responses are responses that develop as a result of a learned pairing of a stimulus (the unconditioned stimulus) that automatically produces a response (the unconditioned response) with a stimulus that does not elicit a response to begin with (making that stimulus a neutral stimulus to begin with). Once the pairing has occurred, the new stimulus becomes a conditioned stimulus, and the response to that new stimulus is called the conditioned response.

25. Suppose someone establishes classical conditioning by pairing a sound with the presentation of food, leading to conditioned salivation. How could one produce extinction?

- a. Punish the animal for salivating.
- b. Present some other stimulus, followed by food.
- c. Repeatedly present the sound without the food.\*
- d. Wait a long time without presenting either the sound or the food.

%Correct %Wrong

90.00%

10.00%

In classical conditioning, extinction deals with the severing of the mental pairing of the conditioned stimulus (which started as a neutral stimulus) and the unconditioned stimulus. To sever this tie, one has to present the conditioned stimulus without the unconditioned stimulus. Over repeated exposures to the conditioned stimulus alone, the connection become extinct (or forgotten) and the conditioned stimulus reverts back to being a neutral stimulus—a stimulus that produces no automatic response.

26. Responses that are followed by satisfaction to the animal will be more firmly connected with the situation so that they will be more likely to recur in the future. This is a brief statement of the

- a. law of effect.\*
- b. principle of temporal contiguity.
- c. disequilibrium principle.
- d. vicarious reinforcement principle.

%Correct %Wrong

63.33%

36.67%

Though most of these terms above relate to operant conditioning, only the law of effect applies to the concept covered in the question. The disequilibrium principle deals with what makes something a reinforcer and a punisher, not how a reinforcer or punisher works. The principle of contiguity deals with the effectiveness of reinforcers or punishers based on how quickly they follow the behavior. Vicarious reinforcement deals with how reinforcement can occur through the observation of other's being reinforced. The law of effect is essentially defined in the example above.

27. The main difference between classical and operant conditioning is that in classical conditioning

- a. the animal's responses control the reinforcements.
- b. the animal's responses do not control the reinforcements.\*
- c. the animal moves a larger part of its body.
- d. the animal receives a reward, not a punishment.

%Correct %Wrong

76.67%

23.33%

This was a more difficult question, but at the root of it is an exploration of what is being learned in the two forms of learning covered extensively in the behaviorism topics covered in the class. In operant conditioning, we learn how our behaviors in different environments lead to pleasurable and unpleasant outcomes. Through this, we essentially learn how to create the outcomes that we want in our environment. In classical conditioning, we learn to connect two stimuli together. We have no control over these stimuli, we just learn that the presentation of one stimulus will typically precede another one.



28. Negative reinforcement is a procedure in which a response
- a. is weakened because it leads to the omission of a favorable stimulus.
  - b. is strengthened because it removes an unfavorable stimulus.\*
  - c. is weakened because it leads to an unfavorable stimulus.
  - d. is weakened because it is followed by nothing.

%Correct %Wrong

50.00% 50.00%

In operant conditioning, any consequence that is defined as a reinforcer is defined as such because that consequence increases the likelihood of the behavior that preceded it to occur again. In other words, reinforcement is a consequence that strengthens a behavior. Any consequence that is defined as negative is defined as such because the consequence involves something being taken away or not occurring as a result of the behavior that is being conditioned.

29. The fact that rats can quickly learn to associate the flavor of water with nausea, while struggling to pair different sounds with nausea is strong proof for the \_\_\_\_\_ of learning.
- a. law of recency
  - b. law of use
  - c. empty organism theory
  - d. preparedness principle\*

%Correct %Wrong

70.00% 30.00%

The laws of use and recency, two laws introduced by Edward Thorndike in his research on what he called instrumental learning, deal with aspects of learning impacted by or related to multiple exposures. This example focuses on an organism's readiness to learn a connection, independent of the number of exposures. In particular, it focuses on an organism's innate ability to learn classically conditioned pairs for specific types of stimuli better than it can for other stimuli. This is called the preparedness principle.

30. Research on classical conditions has shown that learning can actually be inhibited if \_\_\_\_\_ conditioning is used in the pairing of stimuli.
- a. trace
  - b. forward
  - c. backward\*
  - d. simultaneous

%Correct %Wrong

70.00% 30.00%

This one was straight from the lecture on classical conditioning. Forward conditioning is another term used for the original approach of Pavlov's when he discovered classical conditioning. In it, the neutral stimulus precedes the unconditioned stimulus, and through this ordering, the neutral stimulus eventually becomes the conditioned stimulus. Trace and simultaneous conditioning, two methods that do not switch the order, but alter the timing of the pairing, weaken the strength of classical conditioning. Backward conditioning, when the unconditioned stimulus precedes the neutral stimulus, actually tends to inhibit that neutral stimulus from ever becoming a conditioned stimulus. Most believe that this is because the neutral stimulus might be learned to indicate that the unconditioned stimulus will not occur any more.

31. In Martin Seligman's infamous research on learned helplessness, he showed that the perception of \_\_\_\_\_ impacted the ability for dogs to learn how to move in order to avoid being shocked.

- a. intentionality
- b. controllability\*
- c. frustration
- d. future pain

%Correct %Wrong

55.00% 45.00%

This research, which will later be linked to research on depression, showed us another aspect to learning. In Seligman's work, he created a lab where dogs would be shocked if they stayed in a particular half of an enclosed area after a signal was presented to them in the room. The main part of his experiment revolved around what he did to the dogs before putting them in this situation. For some of his dogs, he presented them with a series of shocks regardless of where they stood or moved to, and only later presented them with the second condition where they could avoid the shock by moving. In the other condition, dogs were shown (sometimes through forceful leading) that they could avoid a shock if they moved from one half of the room to another after a signal had been indicated, and then were put into the experimental condition. This work is considered the basis for the concept of learned helplessness that results from the perceived inability to control one's environment.

32. Edward Tolman's research on maze learning in rats provided strong evidence for \_\_\_\_\_, which was very strong proof against the argument that learning could not occur in the absence of reinforcements.

- a. vicarious learning
- b. frustration responses
- c. latent learning\*
- d. expectation based learning

%Correct %Wrong

81.67% 18.33%

In Tolman's work, which was detailed extensively during the lecture, he created a maze that he ran rats through for a series of days. In one group of rats, the rats were rewarded for running the maze by being given food at the end of the maze. For the other group of rats, there was no reward at the end of the maze and they were left to just run around as they pleased. Tolman showed that despite the rats in the "no reward" condition not showing signs of learning during their initial non-rewarded trials (through error counts and speed of maze running), they quickly showed that they had indeed learned the maze when a reward was later given for running the maze. This is the essence of what is now called latent learning.

33. The results of Albert Bandura's research on aggression in children during his Bobo Doll experiment revealed how \_\_\_\_\_ can be found in humans, just like in other species.

- a. vicarious learning\*
- b. frustration responses
- c. latent learning
- d. expectation based learning

%Correct %Wrong

73.33% 26.67%

In Bandura's experiment, he had children observe a model—an adult female research assistant—play with a collection of toys in a room. In one condition, the model played with the toys in the room while avoiding any acts of aggression towards a giant bobo doll that was placed in the room. In the other condition, children saw the model ignore most of the other toys in the room and commit a series of aggressive acts (pummeling, hitting with a mallet, etc.) on the doll. Afterward, each group of children were then allowed to play with the toys in the same room. The ones that saw the model play with the toys and ignore the bobo doll rarely acted aggressively toward the doll. The ones that saw the model act aggressively often mimicked and even embellished upon the aggressive acts of the model toward the bobo doll. This is an example of what is called vicarious learning.

34. Relatively recent research on sensation has suggested that we have at least \_\_\_\_ senses.

- a. 5
- b. 6
- c. 7
- d. 9\*

%Correct %Wrong

46.67% 53.33%

Alas, this is one of the more difficult questions for students that didn't need to be if the information in the presentation on the senses was followed well enough. Though the 9 senses were discussed extensively in the lecture on our senses, students that have learned about senses before taking the class often mistakenly believed that we only have 5 senses. Our 9 senses are vision, audition (hearing), gustation (taste), olfaction (smell), touch, temperature, pain, kinesthesia (motion), and equilibrium (balance). If you didn't get this one, it probably means that you faded a bit near the end of this section.

35. Rods and cones are called \_\_\_\_\_, and are critical in the process of \_\_\_\_\_.

- a. receptor cells; hearing
- b. projector cells; touch
- c. receptor cells; vision\*
- d. projector cells; taste

%Correct %Wrong

98.33% 1.67%

Rods and cones are cells located in the back of our eyes. Cones are responsible for our ability to detect color and fine details. Rods are responsible for our ability to detect light and dark contrasts and are especially useful at night. Since their primary responsibility to convert outside information (in this case electromagnetic energy) into a neural message, we call them receptor cells.

36. Structures in the \_\_\_\_\_ are critical in our sense of equilibrium.

- a. nose
- b. ears\*
- c. eyes
- d. throat

%Correct %Wrong

93.33% 6.67%

Though much of our sense of equilibrium is regulated by neurons housed in our cerebellum, the structures of the inner ear (the vestibular sac and semicircular canal) play a critical role in how our cerebellum generates our sense of balance. Our vision only plays a minor role at best in that sense of balance, and to my knowledge, nobody has ever shown that our throat or nose plays any role whatsoever in our sense of balance.

37. The doctrine of specific nerve energies relates to the notion that \_\_\_\_\_ are determined by the \_\_\_\_\_.

- a. sensations; area of the brain that processes it\*
- b. thoughts; pathways that travel between neurons
- c. sensations; areas of the body that have the cells to detect the appropriate stimuli
- d. thoughts; rhythm of communication that occurs between neurons

%Correct %Wrong

33.90%

66.10%

This was apparently another difficult question for the class. However, it was covered extensively in one of the class lectures. The doctrine of specific nerve energies dealt with our sensory and motor systems. This heavily supported theory posits that your senses are not experienced directly from the cells that are activated on your skin, eyes, ears, or any other sensory organ. Instead, they are experienced because of the patterns of response that come from the brain. These responses from the brain are derived from the messages being sent to the brain by the sensory organs and nerves that connect to them, but this theory suggests that if we had the ability to cross your sensory nerve paths that travel from the organs to the brain, you would “see” smells, “hear” tastes, or some other interesting pairing.

38. According to the trichromatic theory (Young-Helmholtz theory) of color vision, how do we perceive the difference between one color and another?

- a. by the velocity of action potentials produced by any given cone
- b. by the total amount of activity by cones in a particular area of the retina
- c. by the relative amount of excitation of three types of cones\*
- d. by the ratio between the activity of the cones and the activity of the rods

%Correct %Wrong

76.27%

23.73%

This trichromatic theory relates to the function of the cones that are primarily located in the fovea of our eyes. This theory, which was later supported by physical evidence, posited that part of the way that we identify different colors is through the actions of three different types of cones in our eyes. Our short wavelength cones respond to light that is sent at a high frequency on the visible light spectrum, our medium wavelength cones respond to light that is sent at a medium frequency on the visible light spectrum, and our long wavelength cones respond to light that is sent at a low frequency on the visible light spectrum. The pattern of activity from these three types of cones in a specific area of our visual field is what our brain uses to determine the color that we are perceiving.

39. One advantage of the opponent-process theory of color vision, in contrast to the trichromatic theory, is that the opponent-process theory can more easily account for

- a. the differences between rods and cones.
- b. the phenomenon of negative afterimages.\*
- c. species differences in color vision.
- d. the fact that the retina contains three types of cones

%Correct %Wrong

69.49%

30.51%

Rods and cones are actually not explained very well through the opponent process theory. Color vision differences between species has a lot to do with the number of cones types that a species uses to see color—so that has nothing to do with the opponent process theory either. Negative afterimages, the effect that occurs after staring at a combination of colors for a long time and then looking at a neutral color (like white), is something that can only be explained through the opponent process theory. Give it a shot if you haven’t tried this in the class lecture.

40. The laws of sensation that were proposed by Weber, Fechner, and Stevens, dealt with our
- threshold for detecting the presence of a stimulus.
  - ability to identify a stimulus as “strong”.
  - ability to identify a stimulus as “weak”.
  - threshold for detecting changes in the intensity of a stimulus.\*

%Correct %Wrong

79.66%

20.34%

There were several laws covered in the section on perception. The laws of Weber, Fechner, and Stevens all related to our ability to detect changes in the intensity of a stimulus. As we advanced in the detail of the laws, we were able to better predict the rules that governed our ability to tell the difference between stimuli, regardless of the stimulus type or intensity of the stimulus that was presented.

41. In signal detection theory, false alarms occur about just as often as hits when people are enticed to have a \_\_\_\_\_ bias.
- conservative
  - liberal\*
  - low sensitivity
  - high sensitivity and liberal bias

%Correct %Wrong

58.62%

41.38%

False alarms, the process of detecting a stimulus when it is not present, occur more often when people are incentivized to detect a stimulus while being punished less for incorrectly identifying a stimulus. This is a situation where a “liberal bias” being encouraged. If no incentive is provided, or punishment for false alarms is high enough (creating a conservative bias), then the rate of false alarms drops dramatically.

42. Proof for subliminal processing in signal detection theory can be found when
- individuals believe that they are detecting a stimulus that is not actually there.
  - individuals can successfully identify a stimulus every time that it is present.
  - individuals can guess the presence of a stimulus that they report not detecting at a rate higher than chance.\*
  - the behavior of an individual is altered due to the message contained within a stimulus.

%Correct %Wrong

37.93%

62.07%

There was a large percentage of the class that got this question wrong. Many of you confused the concept of subliminal messaging with subliminal processing. Though the topics are related, they are not the same thing. Subliminal processing in the signal detection theory deals with our ability to detect stimuli, even if we do not consciously recognize that we have detected them. Research on this topic has led many researchers studying consciousness to redefine the term unconscious, a concept that was originally conceived by researchers like Sigmund Freud.

43. Which of the following statements would Henry make if he were an advocate for the ecological view of taste perception?

- a. Different preferences for different foods are a result of expectation.
- b. All that we perceive in taste can be broken down into the molecules that we consume.\*
- c. Memory is a key element to the differences that we see between individuals when they taste something
- d. The mind and the properties of something being eaten must be taken into account if we are to truly understand how someone will describe its taste.

%Correct %Wrong

44.83% 55.17%

The ecological view of perceptual psychology argues that our perception of a stimulus is solely based on the information provided by the stimulus. It suggests that our own expectations and interpretations of the environment do not play a role in the process of perception. This type of perception is often called bottom-up processing. Research on this ecological view, though it originally showed promise, has since been rejected as a way to explain perception. Visual illusions have been the strongest forms of evidence that top-down processing must also occur for us to perceive stimuli the way that we perceive it.

44. Retinal disparity is an example of all BUT which one of the following.

- a. A binocular cue
- b. A method of determining distance
- c. Something that allows objects like the stereoscope to create illusions of depth
- d. Proof against the ecological view of perception\*

%Correct %Wrong

88.33% 11.67%

Retinal disparity is a process that can be used to determine the distance of objects. For this process to work, an object must be seen with two eyes (hence, it is a binocular cue). And the image that the two eyes process must be different. The amount of difference that the two eyes receive is accounted for by the mind in order to determine depth perception and how far an image is from the observer. This process was taken advantage of many years ago when the first 3-D viewer called the stereoscope was invented. However, since distance calculations through this method do not require expectations and input from the mind in order to make the calculations (top-down processing), it is actually seen as an example of how the ecological view for depth perception might work. Thus, it is definitely not proof against the ecological view.

45. Which theory attempts to explain why a given injury may produce much pain in one person and less pain in another, or more at one time and less at another?

- a. string theory
- b. opponent-process theory
- c. gate theory\*
- d. trichromatic theory

%Correct %Wrong

86.67% 13.33%

The string theory is a theoretical concept that relates to physics and matter. It has nothing to do with the concept of pain—at least to the best of my knowledge. The opponent-process and trichromatic theory both deal with color vision. The only theory that deals with pain perception, and in particular, individual differences in interpretation of pain, is the gate theory. It focuses on how expectations and emotions impact the interpretation of pain.

46. \_\_\_\_\_ are perceptual psychologists that contend that our perception can only be explained through studying both the stimuli present and the actions of our mind.
- Minimalists
  - Expansionists
  - Gestaltists\*
  - Pattern detectionists

%Correct %Wrong  
65.00% 35.00%

This question had a number of distractors in it. The only term that really relates to perception on this list is the term used for the group of psychologists named Gestaltists. These psychologists attempted to understand the topic of perception by not only examining the properties of the stimuli that were present, but by also coming up with a set of rules (laws and principles) that our mind used to go beyond what was being presented when making sense of the different stimuli reaching our sensory organs.

47. Our tendency to detect letters faster when they are located in words, our ability to detect some words as words more quickly than others, and our ability to see size constancy when perceiving a moving object has all been linked to the importance of \_\_\_\_\_ in perception.
- bottom-up processing
  - top-down processing\*
  - symbiotic processing
  - “grandmother cells”

%Correct %Wrong  
61.67% 38.33%

Top-down processing is the process of perceiving the properties of a stimulus by using your expectations and previous experiences to shape your perception of the information being received by your sensory organs. The critical aspect to this part of perception is the notion that perception is more than just an algorithm that breaks down the information coming from the stimuli into something that can be perceived. Instead, it is a process that involves an interaction between the stimuli and the interpretations and expectations of the perceiver.

48. Most optical illusions can be used as examples for support of the \_\_\_\_\_ view of perception.
- Constructionist\*
  - liberal
  - minimalist
  - ecological

%Correct %Wrong  
59.32% 40.68%

The constructionist view is a term used to explain that perception is indeed a byproduct of both bottom-up and top down perceptual processing. As was stated a few times before, most individuals studying perception today tend to support the constructionist view over the ecological view when attempting to explain perception.

49. Optical illusions like the Muller Lyer illusion, the Ebbinghaus illusion, and the parallel lines illusion all reveal how \_\_\_\_\_ can greatly impact our perception of \_\_\_\_\_.
- a. nearby objects; size\*
  - b. nearby objects; motion
  - c. binocular cues; size
  - d. binocular cues; motion

%Correct %Wrong

41.67% 58.33%

Both the Muller Lyer and Ebbinghaus illusions create misperceptions in the size of objects (in particular lines and spaces). These illusions are both created by the juxtaposition of nearby objects that through their presence and location trigger different top-down processes that cause the perceiver to misperceive the size of an object. A few explanations for why these illusions occur have been proposed over the years, but regardless of why they work, we do know that size is misperceived as a result of nearby objects.

50. The way different cultures perceive constellations in the stars and the example of the “canals” on Mars are both proof for the importance of
- a. the optical illusions that they generate.
  - b. the schemata that people apply to stimuli.\*
  - c. the proximal stimuli that shape our perception.
  - d. subconscious perception of stimulus properties.

%Correct %Wrong

54.24% 45.76%

This was one of the last topics covered in the perceptual lectures. In the lecture, Dr Kihlstrom discussed how each culture over time has often created constellations in the stars (images that come from the arrangement of the stars), but that these stars constellations are often different from culture to culture and often related to an important theme or object of each individual culture. When paired with story of the Mars “canals” that early astronomers swore they saw when looking at the planet, we have two great examples of how expectations and knowledge bases (i.e. schemas) can have a large impact on our perception of the world around us.