

Honor Code: I pledge on my honor that I have neither given nor received aid on this examination.

Signed _____

I give my permission to have my grade posted on the class web page by my ID number as long as this is done in a way that ensures the anonymity of my grade.

Signed _____

[65 total multiple choice: 1 point each]

<90 total points for exam>

1. Psychologists separate behavior from mind in defining psychology because:
 - a. only behavior can be studied scientifically
 - b. only behavior can be directly measured by an objective observer**
 - c. only the mind can be studied scientifically
 - d. modern psychology focuses on the study of behavior, rather than the study of mental events.

2. Janet touches a stove that is warm; Pierce touches a stove that is hot. Based on what is known about action potentials you could predict that:
 - a. the action potentials in Pierce's nervous system will travel more quickly because the incoming signal is more intense
 - b. the action potentials in Janet's nervous system will be weaker because the incoming signal is less intense
 - c. the action potentials in both individuals will be the same due to the all-or-none principle**
 - d. the action potentials in Pierce's nervous system will travel a shorter distance because the incoming signal is more intense

3. The scientific method always:
 - a. begins with observation and ends with generation of a hypothesis
 - b. begins with generation of a hypothesis and ends with systematic observation
 - c. begins and ends with observation**
 - d. begins with the detection of regularities and ends with generation of a hypothesis

4. Dr. Boser is studying family relations and plans to define family cohesiveness in terms of the number of weekly activities families do together. Defining family cohesiveness in this way would:
 - a. be a testable hypothesis
 - b. provide empirical verification of the concept
 - c. violate general research ethics
 - d. represent an operational definition**

5. You obtained the following data (3, 3, 4, 6, 9). The mean, median, and mode of these data are, respectively,:
 - a. 5, 4, 3**
 - b. 3, 4, 5
 - c. 6, 3, 5
 - d. 4, 4, 3

6. Dr. Phillips predicts that if the temperature of a room is increased, then individuals are more likely to act aggressively. This suggests that Dr. Phillips believes room temperature and aggression are:
- a. negatively correlated
 - b. uncorrelated
 - c. positively correlated**
 - d. both dependent variables

7. A resting potential is:
- an electrical signal that travels along the axon of a neuron
 - the small gap that exists between adjacent neurons
 - the tiny electrical charge that exists when a neuron is neither receiving nor sending information**
 - an electrical signal that travels along the dendrites of a neuron
8. Researchers studying human memory presented people with two lists of words. One list included the names of objects; the other list contained abstract nouns. The researchers found that people could remember more words from the list with object names. In this study the type of word in the word list (object name or abstract noun) would be:
- the placebo
 - a confounding variable
 - the dependent variable
 - the independent variable**
9. Glial cells are the cells in the nervous system that:
- help neurons to remove waste products and communicate more efficiently**
 - make the initial contact with the environment
 - convey information from one internal processing site to another
 - make supplementary neurotransmitters
10. Tim was working in the chemistry lab when there was a small explosion and a flash of yellow. For several seconds Tim saw blue spots before his eyes. This is best explained using:
- trichromatic theory
 - akinetopsia theory
 - opponent-process theory**
 - feature-detection theory
11. A group of researchers wanted to determine whether people would eat more food in a cool room than in a hot room. Half the participants ate in a warm room (75°F) and half the participants ate in a cool room (65°F). The researchers then measured how much food was consumed in each of the two rooms. In this study the dependent variable is:
- the temperature of the room (75°F or 65°F)
 - the type of food the researcher selects for the study
 - the amount of food that is consumed**
 - how hungry the participants are at the start of the study
12. Many of us have some misconceptions about science. One of these misconceptions is that:
- science is always correct**
 - science is not always conducted by an idealized method.
 - science is not always objective.
 - science is about theories, not facts.
13. We watched a film in class about a “split-brain” patient. This patient was shown paintings of faces constructed from fruits or vegetables. When the painting was flashed in the right visual field, the patient typically reported seeing _____, and when the painting was flashed in the left visual field, the

- patient typically reported seeing _____.
- a face; a face
 - fruits or vegetables; fruits or vegetables
 - a face; fruits or vegetables
 - fruits or vegetables; a face**
14. Random assignment to either the control or experimental group is an important aspect of experimental procedures. Random assignment is used to ensure that:
- a representative sample of participants is initially selected
 - expectancy effects are minimized within the experiment
 - the independent variable will be reliable and valid
 - the experimental and the control group are as similar as possible**
15. The gate-control theory of pain suggests that:
- impulses generated by pain receptors can be blocked by the spinal cord by signals originating in the brain**
 - hormones can effectively block the signals of certain neurotransmitters that signal pain
 - pain signals in the brain can be blocked by opposing signals generated in the spinal cord
 - the reticular system can generate signals that will block pain signals as they cross the pons in the lower brain
16. Angelica took part in a research study where she had to sit alone in a darkened room for 30 minutes before completing a brief questionnaire about her future goals and plans. When she had completed the questionnaire she was told the experiment was over. Angelica never really understood the purpose of the study, and she wasn't sure why she had to wait in the darkened room before filling out the short questionnaire. In this case, it would appear that the researchers who conducted the experiment:
- violated Angelica's right to confidentiality
 - failed to obtain informed consent
 - did not use an adequate debriefing procedure**
 - did not provide adequate protection from potential harm
17. Which statement below about PNS (Peripheral Nervous System) is true?
- the autonomic system is a part of PNS, and the autonomic system consists of the sympathetic system and the brain
 - the thalamus is important in PNS because it passes sensory information to the brain
 - the autonomic system is important because it helps us to prepare for, and recover from, emergencies**
 - the limbic nervous system can transmit neural messages from the stomach and intestines to the spinal cord
18. Sensory neurons:
- carry messages outward to muscles and glands
 - produce hyperpolarization when they are activated
 - carry information inward toward the spinal cord and the brain**
 - remove waste products and speed neural transmission
19. Because reflex pathways are controlled primarily by spinal cord pathways:

- a. individuals typically respond slowly to painful stimuli and events
 - b. individuals are able to respond more quickly to painful stimuli and events**
 - c. individuals will only show adaptive reflexive responses when the spinal cord is intact
 - d. individuals with damage to the hippocampus would not show any reflexive responses
20. Experimental research involves:
- a. assessing the relationship between two variables to determine if they vary together in a systematic way
 - b. research focused on a single case in an effort to accumulate in-depth information about an issue
 - c. recording and describing naturally occurring behavior without any interference
 - d. active manipulation of some aspect of the environment in order to observe the effect on behavior**
21. Which of the following is a true statement about the structural components of a neuron?
- a. dendrites transmit information to other neurons
 - b. the soma stores genetic material and is the metabolic center of the neuron**
 - c. terminal buttons produce the neurotransmitters
 - d. the myelin sheath transmits information from one neuron to other neurons and cells

22. Dr. Duggan is trying to determine the likelihood that the pattern of responses in the data collected during a recent study occurred by chance. To help in making this determination, Dr. Duggan should use:
- descriptive statistics
 - case study analysis
 - inferential statistics**
 - operational definitions
23. Currently, the best description of the way in which color is encoded in the visual pathways is that color vision:
- begins as an opponent process in the retina and later switches to a trichromatic process
 - is an opponent process in the left cerebral cortex and a trichromatic process in the right cerebral cortex
 - begins as a trichromatic process in the retina and later switches to an opponent process**
 - is an opponent process in the right cerebral cortex and a trichromatic process in the left cerebral cortex
24. Researchers use the term external validity to refer to:
- effective control of potential confounding variables
 - how well research results generalize across subjects and situations**
 - research results that are statistically significant
 - results obtained from research conducted in naturalistic settings
25. The chemical synapse is:
- the structure that pumps ions in and out of the neuron's main cell body
 - the point in the neuron where the action potential is started
 - a small gap between adjacent neurons**
 - the place that produces proteins
26. Dr. Greene was investigating the effects of weightlessness on general psychological functioning. Dr. Greene was able to locate three former astronauts who had experienced at least 10 days of weightlessness in space. These individuals were tested extensively and questioned in detail about their experiences. Dr. Greene's research represents:
- the correlational method of research
 - case study research**
 - survey research
 - the experimental method of research
27. The lights around the movie marquee flashed on-and-off in succession. However, Mike did not perceive them as separate flashing lights, but instead saw a continuous band of light moving around the edge of the marquee. Mike's perception illustrates:
- the Gestalt law of proximity
 - akinetopsia
 - the phi phenomenon**
 - convergence
28. The flow of information within a neuron is:

- a. from terminal buttons to axon to soma to dendrites
- b. from dendrites to soma to axon to terminal buttons**
- c. from dendrites to axon to terminal buttons to soma
- d. from axon to soma to dendrites to terminal buttons

29. June is a graduate student whose major area of interest is social psychology. You should expect that June is most interested in:
- a. how people relate to each other and influence each other**
 - b. the ways in which physical or genetic factors influenced and determine behavior
 - c. the internal factors that lead people to act consistently across various situations
 - d. how behavior and mental processes change over a lifetime
30. The electrical signal that travels along the axon of a neuron is called:
- a. an action potential**
 - b. a synaptic gap
 - c. a resting potential
 - d. a neurotransmitter
31. The fovea of the eye:
- a. produces a blind spot in individuals with monocular vision
 - b. helps to focus light accurately on the retina
 - c. enhances the accuracy of peripheral vision
 - d. is the central part of the retina where the cones are concentrated**
32. The neural impulse is transferred to the next neuron via:
- a. interneurons in the synapse
 - b. neurotransmitters**
 - c. the myelin sheath
 - d. the sodium-potassium pump
33. Sheridan is taking a medication to alleviate the symptoms associated with anxiety. The medication that Sheridan is taking is most likely affecting levels of the neurotransmitter:
- a. serotonin
 - b. dopamine
 - c. acetylcholine
 - d. GABA**
34. An individual's genotype:
- a. is the person's observable characteristics
 - b. will only be displayed if the person is homozygous for a given trait
 - c. is the actual genetic message encoded in the person's chromosomes**
 - d. will not be displayed if the person is homozygous for a given trait
35. Now it's known that the trait of red hair is recessive. If you don't have red hair, you can conclude that you must have:
- a. no red hair genes
 - b. only one red hair gene
 - c. at least one red hair gene
 - d. at most one red hair gene**
36. Within the cerebral cortex, the initiation of voluntary movements is controlled by:

- a. **the Frontal lobe**
 - b. the Parietal lobe
 - c. the Occipital lobe
 - d. the Temporal lobe
37. The likelihood of an action potential decreases:
- a. when sodium channels open, allowing sodium ions to flow into a neuron
 - b. **when either potassium ions flow out of the cell body or chloride ions flow into the cell body**
 - c. when either chloride ions flow out of the cell body or potassium ions flow into the cell body
 - d. the neuron's sodium/potassium pump is inactivated
38. Sensations are:
- a. **the elementary features or building blocks of experience**
 - b. the processes used to translate external messages into neural impulses
 - c. the collection of processes used to arrive at a meaningful interpretation of an experience
 - d. the physical properties of stimuli in the environment
39. If the human nervous system was not wired to respond to differences in the wavelengths of reflected light, people would not:
- a. detect differences in brightness
 - b. respond accurately to movement
 - c. **detect differences in colors**
 - d. have full peripheral vision
40. Most people need reading glasses when they get older because they lose accommodation power due to:
- a. the shrinkage of the eyeball
 - b. **reduced flexibility of the lens**
 - c. a reduction in the amount of photopigment
 - d. an increase in the pressure in the eyeball
41. Bonnie was playing the piano when her little sister asked her how to spell "rhinoceros." Bonnie was able to think through the complicated spelling without stopping her piano practice. This suggests that, for Bonnie:
- a. **piano playing has become an automatic process**
 - b. spelling has become an automatic process
 - c. piano playing is an effortful process that requires conscious attention
 - d. spelling does not require focused attention
42. Fifteen minutes after Mike entered the dark theater from the brightly lit lobby:
- a. **dark adaptation was complete in his cones, but was still taking place in his rods**
 - b. dark adaptation was still taking place in both his rods and his cones
 - c. dark adaptation was complete in his rods, but was still taking place in his cones
 - d. dark adaptation was complete in both his rods and his cones
43. A neuron's electrical potential becomes more negative in response to:

- a. **an inhibitory message**
 - b. an excitatory message
 - c. depolarization
 - d. the firing of the dendrites
44. Adults have a very difficult time **not** reading words in their native language because reading has become automatic through extensive practice. The demonstration in class showed that adults still processed words, even though they were instructed to name the color. This demonstration was an example of:
- a. Chameleon effect
 - b. **Stroop interference**
 - c. Geon inhibition
 - d. Generation effect
45. Imagine that the human eye only had rods, and no cones. In this situation a person would have:
- a. **no color vision**
 - b. poor vision in low illumination
 - c. poor peripheral vision
 - d. more accurate depth perception

46. Which statement below about CNS (Central Nervous System) is correct?
- a. CNS consists of the somatic and autonomic nervous system
 - b. CNS contains sensory neurons and motor neurons
 - c. Somatic nervous system is a part of CNS since it takes charge of movement
 - d. CNS consists of the brain and the spinal cord**
47. The receptive field of a ganglion cell refers to:
- a. the range of wavelengths that will cause the cell to fire
 - b. the hemisphere of the brain that receives the neural signal
 - c. the area of the retina that will trigger the firing of the cell**
 - d. the portion of the thalamus that causes the cell to fire
48. Bottom-up processing involves:
- a. scanning an object from the bottom to the top when it is first encoded
 - b. the use of innate principles of organization to aid perception
 - c. using perceptual illusions to aid in recognizing familiar objects
 - d. the sensory analysis of the actual environmental message**
49. The fact that most people perceive individual elements that are moving in the same direction as being part of a single group is consistent with the Gestalt law of:
- a. proximity
 - b. similarity
 - c. closure
 - d. common fate**
50. When Dick heard a car backfire the message was carried from his ears to his central nervous system along:
- a. motor neurons
 - b. interneurons
 - c. sensory neurons**
 - d. glial cells
51. In paintings, artists can often give the impression of depth by drawing objects such as train tracks as pairs of converging lines. The impression of depth originates due to the monocular depth cue of:
- a. convergence
 - b. linear perspective**
 - c. binocular disparity
 - d. stereoscopic imagery
52. Sound waves are transduced into neural impulses:
- a. by the eardrum
 - b. by the malleus, incus, & stapes
 - c. in the cochlea**
 - d. in the auditory canal
53. After a small section of his basilar membrane was damaged, Dimitri experienced a noticeable loss of hearing for high-pitched sounds only. Dimitri's hearing loss is best explained using the:

- a. frequency theory of hearing
- b. Young-Helmholtz theory of hearing
- c. place theory of hearing**
- d. opponent-process theory of hearing

54. Trevor and Julia were walking one night when they heard a loud crash. Trevor was convinced the sound came from directly in front of them and Julia was convinced the sound came from directly behind them. The reason they might have difficulty localizing the sound is:
- a. we are able to judge distance better than direction for sound
 - b. sound localization is more difficult when it is dark
 - c. the sound waves would have arrived at both ears at the same instant**
 - d. the sound did not involve speech, and only speech can be accurately localized
55. If researchers discovered a new animal, and the animal's somatosensory cortex had smaller areas dedicated to the neck than to the tops of the ears, it would indicate that:
- a. the tops of the ears are less sensitive than the neck
 - b. the ears are closer than the neck is to the cortex
 - c. the neck is less sensitive than the tops of the ears**
 - d. the neck is closer than the ears are to the cortex
56. Bart has a bad case of vertigo. He feels like the room is spinning, and he has trouble keeping his balance. It is possible that this sense of disequilibrium is a result of excess activity in neurons originating in the:
- a. semicircular canals**
 - b. olfactory bulb
 - c. limbic system
 - d. P-channel
57. Gustation refers to our sense of:
- a. taste**
 - b. smell
 - c. balance
 - d. movement
58. Each eye has a slightly different view of the world. This cue for depth is known as:
- a. linear perspective
 - b. binocular disparity**
 - c. convergence
 - d. texture gradient
59. The intensity level at which people can detect the presence of a stimulus 50% of the time is called the:
- a. difference threshold for a stimulus
 - b. absolute threshold for the stimulus**
 - c. perceptual threshold for the stimulus
 - d. adaptation threshold for the stimulus
60. A penny demonstration was performed during class to prove that it is easier to correctly detect the difference between the weight of 10 vs. 12 pennies, than to detect the difference between the weight of 30 vs. 32 pennies. This was a demonstration of:
- a. the absolute threshold
 - b. Weber's Law**
 - c. The Law of Magnitude

- d. Steven's Power Law
61. When I am a passenger in a car, I tend to gaze mindlessly out the window. I notice that objects close to the road (e.g., traffic barrels) seem to go by very quickly, while the trees in the distance seem to move more slowly. I can tell the distance of the objects by how quickly they go by. This is an illustration of what monocular cue?
- a. relative size
 - b. interposition
 - c. linear perspective
 - d. motion parallax**
62. Hypnotizability is most related to:
- a. one's imagination
 - b. the experience level of the hypnotist
 - c. one's gullibility
 - d. one's ability to become absorbed in an activity**
63. You are at a large, loud party having a conversation with a friend. You ignore all the noise around you to focus on your conversation, but suddenly you hear, and are able to attend to, someone calling your name. This is an example of:
- a. the cocktail party effect**
 - b. latent content
 - c. an attention deficit disorder
 - d. manifest content
64. Mike used to experience occasional bouts of insomnia. Recently he started taking sleeping pills to help him overcome the insomnia. Now he finds that he cannot get to sleep unless he takes a sleeping pill. This would suggest that Mike:
- a. has developed a drug tolerance for his sleeping pills
 - b. is experiencing the effects of drug withdrawal
 - c. has developed a drug dependency on his sleeping pills**
 - d. has become habituated to sleeping pills
65. Mike bought his \$500 car before he knew how to drive a stick-shift (a manual). For the first couple of days, Mike got stuck at stop lights because he could not keep the car from stalling (very embarrassing). He had to use very concentrated effort to shift gears. After a few weeks, shifting became easier and he did not have to think about it anymore, he just did it. This is an example of:
- a. an automatic process becoming a controlled process
 - b. a controlled process becoming an automatic process**
 - c. a transfer of skill acquisition from driving an automatic car to a manual car
 - d. an attention deficit disorder

FILL IN THE BLANK**[20 total points: 1 point for each blank]**

1. The primary goals of psychological science are (1) **description** and (2) **explanation**.

2. Because psychology is a science, like other sciences, psychologists prize data and theories that are (1) **verifiable**, cumulative, public, and (2) **parsimonious**.

3. Because observation is the ultimate authority in psychology, psychologists use the **scientific method** as their main tool for investigating behavior and mind. It involves forming a hypothesis on the basis of initial observations, and then testing the hypothesis with further observations.

4. Representative samples are produced through **random sampling**, which means that everyone in the target population has an equal likelihood of being selected for the survey.

5. The aspect of the environment that is manipulated in an experiment is called the **independent variable**.

6. The part of the neuron that transmits information from one neuron to other neurons and cells is the **axon**.

7. The process associated with an increase in the likelihood of an action potential is **depolarization**.

8. One neurotransmitter that often produces inhibitory effects and stabilizes communication within the brain is **GABA**.

9. Early studies of brain damage indicated that patients who could understand, but who could not produce, spoken language often had damage to an area known as **Broca's Area**.

10. Within the forebrain, the structure that plays an important role in the regulation of eating, drinking, body temperature, and sexual behavior is the **hypothalamus**.

11. Sound is in the form of **mechanical** energy, requiring a medium such as air or water in order to move.

12. The process through which rods and cones convert electromagnetic energy into neural signals is an example of **transduction**.

13. The trichromatic theory of color vision could not account for the color **yellow**.

14. Loudness is determined by the **amplitude** of a sound wave.

15. The Mind-Brain theory, **epiphenomenalism**, proposes that conscious thoughts and feelings are produced by the brain but cannot affect the brain (i.e., the brain affects the mind, but the mind is a byproduct of the brain).

16. **Steven's Power Law** proposes that the intensity of a sensation is directly proportional to the intensity of the physical stimulus raised to a constant power ($S = cM^p$).

17. When the body develops **tolerance**, increasing amounts of a substance are required to produce the same physical and behavioral effects.

18. The "elderly words" and race and "intelligence" experiments discussed in class demonstrated the powerful effect of **the unconscious** on behavior

WORD BANK

absolute sensory threshold	accommodation	action potential	amplitude
anthropology	attention	axon hillock	axon
blue	Broca's area	chemical	cones
confounding variable	cornea	dendrite	dependent variable
depolarization	description	dopamine	drug dependency
eclectic	electrical	empiricism	epiphenomenalism
eugenics	explanation	fovea	frequency
GABA	glial cells	green	hypnotism
Hypothalamus	Independent variable	interactionism	interneurons
Karsakoff's area	lens	mechanical	medulla
naturalistic observation	neural monism	norepinephrine	parsimonious
philosophy	physiology	pitch	placebo
pons	random assignment	random sampling	range
red	repolarization	rods	scientific method
sensory adaptation	sensory interaction	serotonin	soma
Steven's Power Law	subjective	the conscious	The Law of Proportions
the unconscious	tolerance	transduction	verifiable
Weber's Law	withdrawal	yellow	

SHORT ANSWER (5 points total)

Give an example of when Steven’s Power Law can better account for the phenomena than Weber’s law. Draw a simple graph (x-axis = physical stimulus intensity; y-axis = psychological intensity) to illustrate why.

2 pts for a valid example:

*** looking for a stimulus with $p > 1.0$ —electric shock, $p = 3.5$**

[also ok: length of a line, $p = 1.0$;

-or- If *explicitly* stated: a stimulus with extremely high or extremely low intensity]

3pts for a valid graph:

