

Answers On The Last Page

Exam

Name _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

- 1) W. Hudson's study, designed to see if all people view two-dimensional pictures as though they were three dimensional representations, found that the ability is _____
A) biologically "hard-wired" and universal.
B) probably developed from exposure to books, photographs, and artwork.
C) present only in Western-educated adults.
D) found earlier in females than in males.
- 2) In the process of _____, energy is converted into neural signals that are sent to the brain. _____
A) sensation
B) transduction
C) adaptation
D) perception
- 3) After physical energy is absorbed by our sensory receptors, converted into neural signals, and sent to the brain, these signals are then selected, organized, and interpreted--a process known as _____
A) sensation.
B) perception.
C) adaptation.
D) transduction.
- 4) With respect to the relationship between sensation and perception, the author of the textbook suggests that _____
A) perception is the more important of the two processes.
B) there is no clear line dividing sensation and perception.
C) psychologists are finally returning to traditional viewpoints.
D) sensation and perception should be treated as separate processes.
- 5) Neurologist Oliver Sacks relates the case of Virgil, a man who had been blind since the age of six, but was given his sight back through surgery, at the age of fifty. Which word best describes Virgil's reaction to his renewed sight? _____
A) elation
B) confusion
C) gratitude
D) joy
- 6) Psychology's first subfield, _____ studies the relationship between physical stimulation and subjective sensations. _____
A) psychophysics
B) parapsychology
C) signal detection theory
D) trichromatics
- 7) What is the absolute threshold? _____
A) the maximum level of stimulation that an organism can tolerate
B) the smallest detectable difference between two stimuli
C) the largest detectable difference between two stimuli
D) the minimum level of stimulation that an organism can detect
- 8) A chef wants to add just enough vanilla to a recipe to make its taste barely detectable. The chef's problem is closely related to the concept of _____

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- A) the JND.
B) the absolute threshold.
C) the difference threshold.
D) Weber's law.

9) Which of the following is LEAST likely to be used by researchers as a method for deriving the absolute threshold? 9) _____

- A) Gradually increase the intensity level and ask the research participant if the stimulus is detectable.
- B) Ask a research participant to adjust the intensity of a stimulus until it is barely detectable.
- C) Given one stimulus, ask a research participant to adjust another stimulus so that the two are the same.
- D) Vary the stimulus presentation randomly, checking with the research participant on each trial about whether the stimulus is detectable.

10) A person is participating in an experiment. The experimenter varies the intensity of a very dim light, and asks the person on each trial whether the light is visible. This experimenter is investigating

- A) absolute thresholds. B) differential thresholds.
C) Weber's law. D) just-noticeable differences.

11) Over the years, research has shown that absolute thresholds are not "absolute." In order to get around this problem when defining the absolute threshold, psychophysics researchers use the

- A) difference threshold instead.
B) point at which a stimulus is detected 50 percent of the time.
C) point at which a stimulus is never reliably detected.
D) point at which a stimulus is detected 100 percent of the time.

12) A general measurement problem, on both questionnaires and in psychophysics studies, is that some people say "yes" even if unsure while others say "no" unless they are positive. This individual difference is called

- A) participant intransigence.
B) response bias.
C) Weber's law.
D) the Heisenberg uncertainty principle.

13) In the real world as well as in the laboratory, some people tend to say "yes" and others tend to say "no." Why can this be a problem for psychophysics researchers?

- A) It makes it difficult for researchers to choose stimuli that are appropriate for each person.
- B) The people are being influenced by more than just the strength of the signal.
- C) The people are being influenced by the strength of the signal.
- D) People always say "yes" if the stimulus is above their absolute threshold.

14) Signal-detection theory is based on the assumption that 14) _____

- A) the research participant's response criterion is more important than the strength of any signal that is presented.

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- B) research participants can be talked out of their response biases.
C) performance is jointly determined by signal strength and the research participant's response bias.
D) research participants who have response biases can be identified and removed from the experiment.
- 15) What is one element that distinguishes the method used by signal-detection theory from other methods for deriving an absolute threshold? 15) _____
A) Research participants are asked to say "yes" when they detect a stimulus.
B) On some trials, a weak stimulus is presented.
C) Research participants are asked to say "no" when they cannot detect a stimulus.
D) On some trials, no stimulus is presented.
- 16) When you enter the classroom, you notice the words "hit," "miss," and "false alarm" written on the blackboard. The instructor is obviously going to be talking about 16) _____
A) signal-detection theory. B) just-noticeable differences.
C) the JND. D) Weber's law.
- 17) While watching a loud movie on the television, you think you hear the phone ring, so you run into the room where the phone is, but it is not ringing. This is an example of a(n) _____; later, the phone does ring, but you do not hear it. This is an example of a(n) _____. 17) _____
A) hit; miss B) hit; false alarm
C) miss; false alarm D) false alarm; miss
- 18) When using signal-detection theory, researchers separate research participants' detections from their response bias by comparing 18) _____
A) each research participant with every other research participant.
B) the research participant's tendency to say "yes" with his or her tendency to say "no."
C) "hit" rates on stimulus trials to "miss" plus "false alarm" rates.
D) "hit" versus "miss" rates on stimulus trials to the tendency to give "false alarms."
- 19) A paint manufacturer asks a paid volunteer to adjust the color of a paint chip so that it matches a given shade of blue exactly. This procedure is typical of research involving 19) _____
A) difference thresholds. B) absolute thresholds.
C) transduction. D) response biases.
- 20) A motorcycle manufacturer advertises this year's model as larger than last year's, yet it does not seem larger to you. The best explanation for your inability to see the motorcycle as larger is that 20) _____
A) Weber's law does not hold in this situation.
B) the motorcycle was not increased by at least 50 percent.
C) the amount the motorcycle was increased in size was less than the just-noticeable difference.

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D) the amount the motorcycle was increased in size was below the absolute threshold.

- 21) The "just noticeable difference" is the _____
A) easiest stimulus to detect (e.g., the loudest, or brightest).
B) largest detectable difference between two stimuli.
C) smallest stimulus that is detectable 50 percent of the time.
D) smallest difference between two stimuli that is detectable 50 percent of the time.
- 22) A car manufacturer wants to make some cost-saving changes in the paint used on new cars. However, company officers do not want the changes to be detected by potential purchasers on the showroom floor. A psychologist is asked to conduct research to help make the decision about the paint. What is the focus of this research? _____
A) adaptation
B) an absolute threshold
C) transduction
D) a difference threshold
- 23) The magnitude of a JND is a constant proportion of the original stimulus. This general principle is known as _____
A) the just noticeable difference.
B) signal-detection theory.
C) the absolute threshold.
D) Weber's law.
- 24) Small candies weigh 1 ounce, and large candies weight 2 ounces. If you had to add 2 small candies for a bag of 100 small candies to feel heavier, how many large candies would have to be added to a bag of 100 large candies for the bag to feel heavier? _____
A) 2
B) 4
C) 1
D) 10
- 25) With respect to Weber's law, it is NOT true that _____
A) it provides a pretty good estimate of our difference thresholds.
B) it fails for the sense of sound.
C) different senses have different thresholds.
D) a JND is a constant proportion of the original stimulus.
- 26) The JND for brightness is 2 percent, but it is 20 percent for the taste of salt. This means that _____
A) brightness does not have to be changed as much as salt for us to notice a difference.
B) brightness has to be changed more than salt for us to notice a difference.
C) Weber's law cannot be used to estimate difference thresholds for the sense of taste.
D) the JND does not exist for taste.
- 27) Current research on humans senses shows that _____
A) there are actually six senses; the sixth has been established as extrasensory perception, or ESP.
B) there are five senses, just as Aristotle suspected.
C) balance, position, and movement of one's body are not considered to provide sensory information of any value.

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D) there are more than five senses.

28) Which of the following would the earliest forms of life find easiest to detect? 28) _____

- A) color
- B) motion
- C) shapes
- D) a light source

29) The stimulus input for vision is 29) _____

- A) vibration of air molecules.
- B) electromagnetic radiation.
- C) electrochemical stimulation of the eye.
- D) pressure on the eyeball.

30) Most insects can see wavelengths in the ultraviolet spectrum, and most fish and reptiles can see wavelengths in the infrared spectrum. How do human visual abilities compare? 30) _____

- A) Humans can see ultraviolet, but not infrared.
- B) Humans can see both ultraviolet and infrared.
- C) Humans can see neither ultraviolet nor infrared.
- D) Humans can see infrared, but not ultraviolet.

31) Imagine being in an experiment on color vision. What color would you report seeing if a researcher projects the longest wavelength in the visible spectrum on a screen? 31) _____

- A) white
- B) blue
- C) black
- D) red

32) Wavelength is to color as amplitude is to _____. 32) _____

- A) brightness
- B) saturation
- C) lack of color
- D) hue

33) The term "purity" refers to the number of wavelengths in a light. If a light contains all visible wavelengths, you would see a _____ light. 33) _____

- A) green
- B) black
- C) white
- D) red

34) The purity of light, as measured by the number of wavelengths that make up the light, influences the _____ of colors. 34) _____

- A) saturation
- B) brightness
- C) hue
- D) amplitude

35) The function of the cornea of the eye is to 35) _____

- A) act as a direct extension of the brain.
- B) give the eye its color.
- C) bend light so that it is sharply focused.
- D) regulate the size of the pupil.

36) The iris of the eye is NOT 36) _____

- A) a muscle controlled by the autonomic nervous system.
- B) the structure that regulates the size of the pupil.
- C) the cause of astigmatism.
- D) responsible for giving the eye its color.

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Even if they have had excellent vision throughout their early life, when people get into middle-age, they often start to need glasses for reading. 37) _____

37) This is often due to

- A) an abnormality known as an astigmatism.
- B) the inability of the lens to maintain its flat shape.
- C) too much accommodation.
- D) the loss of elasticity in the lens of the eye.

38) Which is the correct sequence of structures light rays pass through on their way to the retina? 38) _____

- A) pupil, cornea, lens, vitreous humor
- B) cornea, pupil, lens, vitreous humor
- C) lens, vitreous humor, cornea, pupil
- D) pupil, cornea, vitreous humor, lens

39) The _____ forms the rear multilayer part of the eye and its function is to transform patterns of light into images that the brain can use. 39) _____

- A) vitreous humor
- B) lens
- C) pupil
- D) retina

40) The _____ are active for black-and white vision in dim light and are found more in the _____ of the retina. 40) _____

- A) rods; center
- B) cones; center
- C) rods; outer edges
- D) cones; outer edges

41) To avoid waking up your roommate, you pick out your clothes in the semi-darkness before dawn. The bright bathroom light reveals a near fashion mistake - a red shirt, green pants, and purple socks. Your problem is that 41) _____

- A) only the center of the retina operates in semidarkness.
- B) cones, which detect color, don't operate in semi-darkness.
- C) the lens only lets in color in bright light.
- D) rods only operate in bright light to show color.

42) The foveae is the section of the retina in which 42) _____

- A) color cannot be seen.
- B) only rods can be found.
- C) only cones can be found.
- D) the blind spot is located.

43) Compared to humans, nocturnal animals who are only active at night are more likely to 43) _____

- A) have a more even mixture of rods and cones.
- B) lack rods in their eyes.
- C) be blind.
- D) be color blind.

44) If a persons retina contained no rods, he or she would _____; if a person had no _____, he or she would lack color vision. 44) _____

- A) have night blindness; rods
- B) be legally blind; cones
- C) be legally blind; rods
- D) have night blindness; cones

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Imagine stepping into a darkened movie theater on a sunny day. Initially, you are likely to have trouble seeing anything, yet after a few minutes you can see again. You would be experiencing a phenomenon known as

45) _____

45)

- A) the blind spot.
- B) light adaptation.
- C) night blindness.
- D) dark adaptation.

46) Pilots who fly at night use low-illumination red lights for their flight checks in the cockpit for at least 30 minutes prior to takeoff. This procedure assures that pilots

46) _____

- A) complete the process of light adaptation before flying.
- B) complete the process of dark adaptation before flying.
- C) overcome their night blindness before flying.
- D) fully adapt their blind spot before flying.

47) With respect to the nervous system, the process of vision technically begins when

47) _____

- A) photopigments break down, triggering neural impulses.
- B) the optic nerve sends messages to the ganglion cells in the brain.
- C) the blind spot is activated by light energy.
- D) light strikes the bipolar cells.

48) The "blind spot" in your eye is the place where

48) _____

- A) light cannot reach.
- B) the fovea is located.
- C) the optic nerve enters the eye.
- D) too many photopigments are located.

49) Which is the correct chain of structures that results in vision?

49) _____

- A) rods and cones, bipolar cells, ganglion cells, optic nerve
- B) rods and cones, optic nerve, bipolar cells, ganglion cells
- C) rods and cones, optic nerve, ganglion cells, bipolar cells
- D) bipolar cells, rods and cones, ganglion cells, optic nerve

50) If you have not noticed your blind spot before, it is because

50) _____

- A) you have brown eyes; only blue-eyed people have a blind spot.
- B) you are probably right-handed.
- C) your eyes are always moving.
- D) the dominant eye does not have one.

51) The object that best describes how information moves from the retina to the brain is a(n)

51) _____

- A) funnel.
- B) elevator.
- C) telephone line.
- D) conveyer belt.

52) In the process of vision, a receptive field is

52) _____

- A) another name for the entire collection of rods and cones.
- B) a region of the retina that is represented by a ganglion cell.
- C) the portion of the eye that is responsible for peripheral vision.
- D) an area of the retina in which cone cells are highly concentrated.

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- 53) The presence of "center-surround" receptive fields makes the human eye particularly attuned to noticing _____
A) corners and edges. B) deep, vivid colors.
C) bright, moving objects. D) day and night.
- 54) Which of the following sequences describes the correct pathway taken by visual impulses? _____
A) optic nerve, optic chiasm, visual cortex, thalamus
B) optic chiasm, optic nerve, thalamus, visual cortex
C) optic chiasm, optic nerve, visual cortex, thalamus
D) optic nerve, optic chiasm, thalamus, visual cortex
- 55) Axons conveying information from the inside half of each eye first cross over to the opposite half of the brain in the _____
A) thalamus. B) optic chiasm.
C) visual cortex. D) optic nerve.
- 56) The Nobel-prize-winning research on feature detectors conducted by David Hubel and Torsten Wiesel involved the presentation of different types of visual stimuli to laboratory animals. What was measured in this research? _____
A) electrical activity of single cells in the visual cortex
B) the transmission of information across the corpus callosum in the brain
C) the animals' perception of color
D) the firing of neurons in the pathways leading from the retina to the optic chiasm
- 57) A vertical line is repeatedly presented in the right visual field of a laboratory animal. This is most likely to result in _____
A) disturbances within the optic chiasm.
B) vibrations in the thalamus.
C) signals being sent from the visual cortex to the left visual field.
D) the firing of feature detectors.
- 58) Simple cells, complex cells, and hypercomplex cells are examples of _____
A) opponent-processes.
B) Gestalt principles of organization.
C) rods and cones.
D) feature detectors.
- 59) If you want to activate a hypercomplex cell in the visual cortex of a monkey, you should present _____
A) the pattern of lines making up the letter "M."
B) a wide horizontal line.
C) a vertical line in the middle of the screen.
D) a line tilted at a 60-degree angle.
- 60) Based on the years of study since the discovery of feature detectors in the visual cortex, which of the following statements is most appropriate? _____

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- A) A wide variety of specialized neurons exist that appear to help an organism adapt to its visual environment.
B) Although promising at first, continuing research on feature detectors has not been especially productive.
C) The visual cortex of the brain does not appear to be as highly specialized as was initially thought.
D) Although important in animals, feature detectors appear to have limited value in explaining human visual processes.
- 61) According to the trichromatic theory of color vision, 61) _____
A) the color receptors red, white, and blue combine to produce all other colors.
B) there are three sets of color cones: black and white; blue and yellow, and red and green.
C) there are three types of cones, each responding to a different range of wavelengths.
D) color is an objective property of objects.
- 62) In an advertising campaign that has a patriotic theme, a company wants television viewers to "see" a red, white, and blue American flag on a screen that is actually blank. What color flag should they present in their advertisement for the viewers to fixate on before the screen goes blank? 62) _____
A) blue, indigo, and violet
B) blue, white, and red
C) green, black, and yellow
D) red, orange, and yellow
- 63) According to opponent-process theory, which color would you be LEAST likely to see? 63) _____
A) bluish red
B) reddish yellow
C) bluish yellow
D) greenish yellow
- 64) What can the opponent-process theory of color vision explain that the trichromatic theory cannot explain? 64) _____
A) afterimages and color blindness
B) light adaptation and dark adaptation
C) feature detectors and white light
D) the presence of the blind spot
- 65) If you have the most common form of color deficiency, you are likely to be a _____ and have trouble distinguishing between _____. 65) _____
A) male; red and green
B) female; blue and yellow
C) female; red and green
D) male; pale blue and pink
- 66) The current theory of color vision says that 66) _____
A) there are three types of cones in the retina, and there are opponent-process type cells in the thalamus.
B) there are specific feature detectors in the visual cortex that respond differently to all of the primary colors.
C) there are four types of color cones in the retina, rather than three.
D) the optic chiasm contains three types of cones, operating on an opponent-process basis.
- 67) Subjectively, the frequency of a sound wave determines its 67) _____

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- A) pitch.
- C) complexity.

- B) timbre.
- D) loudness.

- 68) When all of the frequencies of the sound spectrum are combined, the result is _____
A) a pure tone. B) white noise.
C) no vibration. D) a decibel.
- 69) Hertz (Hz) is to frequency as decibel is to _____.
A) timbre B) pitch
C) wavelength D) amplitude
- 70) A musician who plays in a loud band is concerned about causing permanent damage to her ears. She should either wear earplugs or encourage the members of the band to _____
A) add white noise.
B) decrease their pitch.
C) decrease the number of cycles per second generated.
D) reduce their decibel output.
- 71) The psychological quality of a sound that allows a person to distinguish between a flute and a saxophone playing the same note at the same loudness, is called _____
A) timbre. B) frequency.
C) pitch. D) amplitude.
- 72) A tuning fork produces a pure tone, which consists of _____
A) no amplitude.
B) 100 Hz.
C) a single frequency of vibration.
D) multiple pitches.
- 73) An important function of the tiny connecting bones in the middle ear is to _____
A) prevent tone deafness.
B) help in the localization of sound.
C) amplify sound.
D) distinguish pitch.
- 74) Which is the correct order in which structures are encountered as sound waves move through the ear? _____
A) eardrum, middle ear, oval window, cochlea
B) eardrum, cochlea, middle ear, oval window
C) eardrum, oval window, middle ear, cochlea
D) oval window, eardrum, middle ear, cochlea
- 75) The hair cells that excite fibers in the auditory nerve are located in the _____
A) middle ear. B) stirrup.
C) semicircular canals. D) cochlea.
- 76) Where do auditory signals go, after they have been routed to the thalamus? _____

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- A) the cochlea
- B) the inner ear
- C) the auditory cortex
- D) the outer ear

- 77) When you answer the telephone and hear a person speak, the process that allows you to identify that the speaker is a child, woman, or man is called 77) _____
- A) tone purity.
 - B) judicial audition.
 - C) relative pitch.
 - D) absolute pitch.
- 78) The fact that you can determine that the siren on a police car is coming from your right and not your left is due to the ability known as 78) _____
- A) relative pitch.
 - B) opponent-process.
 - C) absolute pitch.
 - D) auditory localization.
- 79) When you hear someone calling you in a crowded room, what factors do you use to determine where the sound is coming from? 79) _____
- A) both the pitch and timbre of sound reaching your dominant ear
 - B) differences in amplitude and complexity of sound reaching your two ears
 - C) either the pitch or timbre of sound reaching your dominant ear
 - D) the timing and intensity of sound reaching your two ears
- 80) If you are standing facing directly down a quiet street with your eyes closed, you will have the most trouble guessing the location of a sound coming from 80) _____
- A) curb level to your left.
 - B) eye level to your left.
 - C) a story above street level to your right.
 - D) directly behind you.
- 81) If people who have been blind since very early infancy are tested for their auditory localization ability, we can expect that they will 81) _____
- A) be fairly unsophisticated in their use of auditory information.
 - B) localize sounds better than sighted people do.
 - C) show extreme deficits in their ability to localize sounds.
 - D) only be able to localize sounds presented to their right ears.
- 82) Research on the causes of hearing loss has concluded that 82) _____
- A) sounds are safe as long as they are not physically painful.
 - B) children and adolescents are unlikely to be exposed to damaging noise.
 - C) people should seek protection from daily exposure to sounds over 85 dB.
 - D) sounds under 120 dB cannot cause permanent damage.
- 83) A relative reports that he is suffering from mild conduction hearing loss. You know that this involves damage to the 83) _____
- A) cochlea.
 - B) hair cells.
 - C) eardrum or the bones in the middle ear.
 - D) auditory nerve.

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- 84) If you had a choice, it would probably be better to have _____ 84) _____
hearing loss, because _____.
A) sensorineural; hearing can be fully restored in most cases
B) conduction; hearing can be partially restored in many cases
C) conduction; it involves the auditory nerve, which can be surgically repaired
D) sensorineural; a hearing aid can be worn to amplify sound waves
- 85) A person with hearing loss is advised that surgery or a hearing aid that 85) _____
amplifies sound waves may partially restore his or her hearing. It is
most likely that the person has
A) auditory localization problems.
B) relative pitch.
C) conduction hearing loss.
D) sensorineural hearing loss.
- 86) For individuals with profound hearing loss due to sensorineural hearing 86) _____
loss, a promising development involves
A) artificial cochlea implants.
B) extremely powerful hearing aids.
C) neural grafting of hair cells.
D) microsurgery to repair damaged auditory hair cells.
- 87) When compared to a deaf child who does not wear cochlea implants, 87) _____
deaf children who do wear them have been shown to
A) have a poorer ability to recognize melodies.
B) have little problem in making out distinct words.
C) get higher scores on language achievement tests.
D) experience a gradual return of normal hearing.
- 88) The olfactory receptors are located in the 88) _____
A) upper nasal passages. B) olfactory nerve.
C) thalamus. D) olfactory bulb.
- 89) After odor-causing molecules have become trapped, they trigger an 89) _____
action potential in the olfactory _____ which sends information to
the olfactory _____.
A) receptors; nerve B) nerve; bulb
C) nerve; receptors D) bulb; receptors
- 90) The sense of smell is different from every other sense in that it 90) _____
A) seems to have no connection to the limbic system.
B) is not routed to the cortex through the thalamus.
C) does not have a sensory receptor.
D) does not have a chemical origin.
- 91) Due to the fact that the olfactory bulbs extend some of their axons 91) _____
directly into the brain's limbic system, it is not surprising that certain
smells are associated with
A) emotional memories. B) certain sounds.
C) tastes. D) visual afterimages.

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- 92) Research using high-resolution brain-imaging technology to study the sense of smell suggests that 92) _____
- A) humans rank first among animals in terms of the ability to distinguish various odors.
 - B) different odors lead to unique patterns of receptor activity in the olfactory bulb.
 - C) there are about 10 million "primary" odors.
 - D) rats appear unable to smell common odors such as bananas and peanut butter.
- 93) Helen Keller was blind and deaf from birth but had an extremely sensitive sense of smell. This illustrates an interesting fact about the sense of smell; namely, that 93) _____
- A) some humans have a sense of smell that is much more sensitive than average.
 - B) only women develop an extremely sensitive sense of smell.
 - C) older people become extremely sensitive to smells, while younger people cannot distinguish smells.
 - D) only people who have "lost" another sense can have an extremely sensitive sense of smell.
- 94) An individual with "anosmia" is unlikely to be able to 94) _____
- A) locate where a sound originates.
 - B) remember ordinary events.
 - C) distinguish colors.
 - D) distinguish odors.
- 95) What have cross-cultural researchers discovered with respect to cultural differences in smell? 95) _____
- A) Comparisons of Dassanetch farmers and the Desana of Columbia show marked differences in the neural pathways for smell.
 - B) The perception of smell is influenced by geography and culture.
 - C) The sensory receptors for smell vary from culture to culture.
 - D) There are no universal odors that attract or repel people from different cultures.
- 96) Concerning sex and age differences in odor sensitivity, _____ at identifying odors, and adult sensitivity _____. 96) _____
- A) men outperform women; peaks in middle age
 - B) men outperform women; improves with increasing age
 - C) women outperform men; improves with increasing age
 - D) women outperform men; peaks in middle age
- 97) A perfume manufacturer is interested in developing scents that are perceived to be sexually exciting by other members of the species. If they work as planned, such chemical substances would be most similar to 97) _____
- A) pheromones.
 - B) sugar water.
 - C) hormones.
 - D) neurotransmitters.
- 98) In a study that is described in the textbook on the ability of people to recognize body odors, it was found that 98) _____

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- A) people in general could discriminate between shirts worn by men and women.
- B) mothers had difficulty picking out the shirts worn by their own children.
- C) most participants reported that smelling their own shirts was sexually arousing.
- D) college students thought that their roommates shirts were their own.

- 99) With respect to the question of whether human pheromones exist that serve as sexual attractants, the conclusion of the author of the textbook is that 99) ____
- A) only the chemical alpha androstenol has been definitely shown to serve as a sexual attractant.
 - B) evidence points to control of male behavior, but not female behavior, by scent.
 - C) humans are no more, or less, controlled by scents than are other animals.
 - D) human sexuality is too complex to be "controlled" by scent.
- 100) If you want to decrease the likelihood that a substance will be tasted, it should be placed on the _____ of the tongue. 100) ____
- A) tip
 - B) sides
 - C) back
 - D) center
- 101) What is the approximate life expectancy of taste buds? 101) ____
- A) 10 days for children, but about 10 years for adults
 - B) 10 days
 - C) 10 minutes
 - D) they last a lifetime
- 102) The primary taste qualities are 102) ____
- A) tart, spicy, bland, and hot.
 - B) sweet, salty, sour, and bitter.
 - C) simple, complex, and hypercomplex.
 - D) temperature, texture, and appearance.
- 103) The most important determinant of a food's flavor is 103) ____
- A) texture.
 - B) temperature.
 - C) appearance.
 - D) odor.
- 104) With respect to the number of taste buds he or she has, the average child is more like 104) ____
- A) an anosmiac.
 - B) a supertaster.
 - C) the average adult.
 - D) a nontaster.
- 105) The largest sense organ involves not one sensory system, but many: What is it? 105) ____
- A) the vestibular system
 - B) touch
 - C) pain
 - D) the kinesthetic system
- 106) Which sense is literally vital for survival? 106) ____
- A) taste
 - B) touch
 - C) hearing
 - D) smell

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- 107) It is important to distinguish between passive and active touch because 107) ____
A) only passive touch involves pain.
B) active touch increases accuracy of discriminations.
C) passive touch is more likely to be associated with illness.
D) they involve vastly different sensory systems.
- 108) The average reading rate among sighted readers is 250 words per minute. In comparison, blind people reading Braille may achieve a reading rate as high as _____ words per minute. 108) ____
A) 600 B) 60 C) 375 D) 200
- 109) Which of the following types of sensations has unique and specialized nerve endings dispersed throughout the body? 109) ____
A) cold B) warmth C) pain D) pressure
- 110) In order to determine whether there are differences in sensitivity to pressure, a researcher applies a thin wire to different areas of a person's skin and systematically varies the pressure. What is the researcher likely to find? 110) ____
A) Most people will be unable to report feeling the wire.
B) People will report that the cold wire actually feels hot.
C) Sensitivity to pressure will be uniformly constant over all body parts.
D) Sensitivity to pressure will vary from one part of the body to another.
- 111) In a test of the ability of people to identify human faces by touch, college students had their other senses blocked, then manually explored an unfamiliar face using only touch. When later asked to choose the face they had explored when given three choices, the students were able to do so accurately nearly _____ of the time. 111) ____
A) 100 B) 80 C) 50 D) 34
- 112) A young swimmer does not like to dive into the pool because the water feels too cold. What would you advise the swimmer to do before diving into the pool so that the water will feel less cold? 112) ____
A) meditate B) take a hot shower
C) take a cold shower D) exercise vigorously
- 113) Some spots on the skin respond more to warming and others to cooling. Suppose you arranged for both types of temperature receptors to fire simultaneously; you would expect people to experience 113) ____
A) an "ice-cold" sensation.
B) first warmth, then a slight cooling.
C) a "hot" sensation.
D) alternating warmth and cold.
- 114) Suppose that research participants in a research study are asked to grip a "heat grill," made of two braided pipes that have cold and warm water running separately through them. If you were to take PET images of their brains, you would likely see activity in the area of the 114) ____
brainonsive that to is resp

Answers On The Last Page

114)

- A) pain.
- C) cold only.

- B) pleasant temperatures.
- D) warmth only.

115) Which sensation is crucial to survival, is not triggered by a single stimulus, is influenced by a number of psychological factors, and does not appear to have specialized receptors?

- A) kinesthesia
- B) pain
- C) taste
- D) the vestibular sense

115) ____

116) The baseball player flinches as his knee is twisted violently while sliding into third base. The immediate signal that something is horribly wrong is transmitted in the nervous system by way of _____ fibers; the dull ache that he will experience for some time to come is transmitted by way of _____ fibers.

- A) "fast" myelinated; "slow" thin
- B) "slow" thin; "fast" myelinated
- C) "slow" fat; "fast" unmyelinated
- D) "fast" unmyelinated; "slow" fat

116) ____

117) If you want to apply the research findings related to the gate-control theory of pain the next time you bump your knee into the coffee table, what should you do?

- A) Sit still so you don't send other skin stimulation to the brain.
- B) Rub the bumped knee vigorously.
- C) Think of something pleasant.
- D) Whistle a happy tune, and smile.

117) ____

118) The body naturally helps one to cope with painful stimuli by

- A) forcing focused distraction.
- B) triggering pleasant memories.
- C) automatically creating competing sensations.
- D) releasing endorphins in the nervous system.

118) ____

119) Imagine that you have dropped your keys into an ice chest filled with ice-cold water. It's dark and you can't see them, so you have to plunge your arm into the water and feel around. In order to help you deal with the painfully cold water, research suggests that you should

- A) ask someone to gently pat your head while you reach into the water.
- B) simply block the pain from your awareness by actively suppressing thoughts of pain.
- C) focus your attention on something specific, such as the layout of your room.
- D) move your arm as slowly as possible when searching for the keys.

119) ____

120) An expectant mother is taught in a childbirth class that she can cope with labor pains by staring at a "focal point" such as a candle, and concentrating on special breathing techniques. Research suggests that individuals who practice such techniques

- A) are able to effectively turn the pain sensations into pleasure.
- B) show greater activation in pain-responsive areas of the brain, but

120) ____

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feel less pain subjectively.

- C) are better able to manage the effects of intense physical discomfort.
- D) show few benefits, but are reluctant to say so.

121) Being able to type with your eyes closed is made possible in large part by 121) ____

- A) the vestibular system.
- B) the kinesthetic system.
- C) synesthesia.
- D) the limbic system.

122) Which item does not belong with the others? 122) ____

- A) equilibrium
- B) kinesthetic system
- C) semicircular canals
- D) vestibular system

123) When a boat starts rocking in a violent storm, even seasoned sailors might feel nauseous and dizzy. The most likely reason for their condition would be 123) ____

- A) cross-modal plasticity.
- B) feedback from the vestibular system.
- C) binocular disparity.
- D) synesthesia.

124) If someone told you that they had the rare condition known as synesthesia, you would expect them to 124) ____

- A) also have extrasensory perception.
- B) be prone to sudden, intense headaches.
- C) experience sensory crossovers.
- D) have been institutionalized.

125) In a study that is described in the textbook, women with word-color synesthesia were compared to controls on the color sensations triggered by letters, words, and phrases. When retested a year later, 125) ____

- A) ninety-two percent of the synesthetic women admitted that they had only pretended to have synesthesia.
- B) the synesthetic women showed evidence of this rare condition.
- C) the women who were initially in the control group had developed a small amount of synesthesia.
- D) the synesthetic women showed no evidence of continuing synesthesia.

126) In a study that is described in the textbook, six synesthetic women and six controls listened to words while blindfolded. PET scans revealed 126) ____

- A) the auditory stimulation activated areas of the visual cortex in the synesthetic women.
- B) no differences between the groups in brain activation.
- C) the auditory stimulation activated language areas and visual areas of the brain in both groups.
- D) the auditory stimulation did not activate language areas of the brain in the synesthetic women.

127) The fact that you are probably not especially aware of the feeling of the clothes that you are wearing is due to 127) ____

- A) focused self-distraction.
- B) sensory adaptation.

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C) selective attention.

D) synesthesia.

128) The ability of a professional basketball player to focus on the basket rather than be distracted by thousands of screaming and waving fans is due to the mechanism of 128) ____

A) selective attention.

B) focused distraction.

C) depth perception.

D) kinesthesia.

129) Perception is best thought of as a(n) _____ process. 129) ____

A) reproductive

B) imitative

C) constructive

D) copying

130) Reversible figures illustrate the important point that 130) ____

A) visual input can be perceived in different ways.

B) the whole is the sum of its parts.

C) closer objects result in greater binocular disparity.

D) the brain functions as a sophisticated copying machine.

131) The idea that "the whole is different from the sum of its parts" is most closely associated with 131) ____

A) white noise.

B) shape constancy.

C) pure tones.

D) Gestalt psychology.

132) Questions related to how one perceives music or extracts meaning from works of art or complex visual scenes seem to speak most directly to the school of thought known as 132) ____

A) behaviorism.

B) extrasensory perception.

C) Gestalt psychology.

D) parapsychology.

133) Clouds appear closer to us than the sky. This is an example of 133) ____

A) the Ponzo illusion.

B) figure and ground.

C) the moon illusion.

D) closure.

134) Which Gestalt law says that the closer objects are to one another, the more likely they are to be perceived as a unit? 134) ____

A) closure

B) proximity

C) similarity

D) common fate

135) From her seat in the viewing stand, the President can easily follow the complex formations of the marching cadets. Her ability to keep track of separate groups, even when they march through one another, exemplifies the Gestalt law of 135) ____

A) closure.

B) similarity.

C) common fate.

D) proximity.

136) As the teacher quickly sketches various geometric shapes on the board, the students mentally fill in the gaps and perceive each object as a whole, even though parts are missing. This illustrates the Gestalt law of 136) ____

A) continuity.

B) closure.

C) common fate.

D) figure and ground.

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- 137) The computer program running your slide show has gone haywire, displaying images on the screen for just fractions of a second. Yet, you can still recognize the objects that are being shown. According to Irving Biederman, this is because you perceive objects by breaking them down into simple, three-dimensional shapes called _____
- A) geons. B) sketches. C) gluons. D) quarks.
- 138) You see your friend Kim across the street and she appears to be her normal size, even though her image on your retina is much smaller than it would be if she were standing right next to you. This is an example of a _____
- A) sensory adaptation. B) perceptual illusion.
C) perceptual constancy. D) reversible figure.
- 139) Which statement most accurately accounts for the phenomenon of perceptual constancies? _____
- A) Although they are present in infancy, experience is also important in the development of perceptual constancies.
B) Perceptual constancies are inborn; experience is not involved in their development.
C) Only experience can account for the development of perceptual constancies; they are not present in newborns.
D) Neither innate factors nor experience are important in the development of perceptual constancies.
- 140) In a classic study that is described in the textbook, an anthropologist studying Pygmies who lived in a densely wooded forest took a native to a mountain. When shown buffaloes far below, the man thought that they were insects. What best accounts for his misperception? _____
- A) an unfamiliarity with animals
B) the presence of size constancy
C) mistrust of the people he was with
D) a lack of experience in judging distance
- 141) When you watch a door open and close, the image of the door on your retina changes from a rectangle into a trapezoid and back again. Yet, you still see the door as rectangular due to _____
- A) size constancy. B) shape constancy.
C) accommodation. D) monocular cues.
- 142) When using convergence, the main source of information concerning an object's distance from us is provided by _____
- A) texture gradients. B) our eye muscles.
C) binocular disparity. D) relative image size.
- 143) Convergence and binocular disparity, cues for the perception of depth, are similar in that both _____
- A) are monocular cues.
B) require the use of two eyes.
C) eliminate texture gradients.
D) require one eye to be dominant.

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- 144) Both the toy View-Master and some virtual reality systems simulate depth by presenting separate but overlapping images to each eye. This technique is most closely related to the depth perception cue called
A) interposition. B) shape constancy.
C) monocular depth cues. D) binocular disparity. 144) ____
- 145) Which of the following cues would be most effective when viewing objects that are far away?
A) convergence. B) binocular disparity.
C) binocular cues. D) monocular cues. 145) ____
- 146) An artist is painting a picture depicting the crew working on the first transcontinental railroad. The fact that the tracks appear to converge and eventually reach a vanishing point in the distance illustrates the depth cue known as
A) linear perspective. B) familiarity.
C) convergence. D) retinal disparity. 146) ____
- 147) Dust particles and moisture in the air blur images at a distance, making objects that are far away appear duller and less detailed. Artists frequently use this principle, which is called
A) atmospheric perspective. B) relative elevation.
C) linear perspective. D) texture gradient. 147) ____
- 148) The "visual cliff" is
A) an apparatus used to test for depth perception.
B) an illusion similar to the "moon" illusion.
C) a reference to the loss of visual acuity that accompanies aging.
D) another name for the optic chiasm. 148) ____
- 149) A six-month-old baby has been placed on the visual cliff apparatus. When coaxed by its mother to crawl out over the cliff, what is most likely to happen?
A) The infant will crawl to its mother, regardless of whether the infant is male or female.
B) If the infant is a girl, she will crawl to her mother.
C) The infant will not crawl to its mother.
D) If the infant is a boy, he will crawl to his mother. 149) ____
- 150) In a study that is described in the textbook, two-month-old infants were placed on the "deep" side of the visual cliff. How did they react?
A) They began smiling and laughing.
B) They exhibited a change in heart rate.
C) They could not focus well enough to see depth.
D) They immediately crawled back to the "shallow" side. 150) ____
- 151) The best answer to the question "Is depth perception innate or is it the product of visual experience?" seems to be that
A) depth perception is entirely the product of visual experience.
B) depth perception is innate and does not require experience.
C) for some individuals depth perception appears to be innate, but for others early experience brings it about. 151) ____

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D) the potential to perceive depth is innate, but early experience is necessary for the skill to emerge.

152) Which expression is most closely related to the concept of "perceptual set?" 152) ____

- A) "Here today, gone tomorrow."
- B) "In one ear and out the other."
- C) "A bird in the hand is worth two in the bush."
- D) "We see what we expect to see."

153) When people are presented with ambiguous stimuli, they are likely to be most influenced by 153) ____

- A) past experiences and the stimulus context.
- B) innate or genetically predetermined factors.
- C) the relative size and complexity of the stimuli.
- D) how easily the stimuli can be measured.

154) In an interview that is presented in the textbook, Eleanor J. Gibson relates the fact that her interest in depth perception came about because of her 154) ____

- A) own inability to perceive depth.
- B) fascination with the subject of physics.
- C) young daughter's behavior on the edge of the Grand Canyon.
- D) husband's insistence that depth perception is learned.

155) According to Eleanor J. Gibson, the major value of the visual cliff is that it 155) ____

- A) approximates a real and important kind of event
- B) has demonstrated that depth perception is innate.
- C) initiates a fear response in both animals and humans.
- D) tests a uniquely human ability.

156) You walk into a room in which people are watching a soap opera. At first you cannot tell whether a character is happy or sad, but when you learn from someone that the character's cat has just been hit by a car, you can see that she is very sad. This illustrates the importance of _____ on perceptual set. 156) ____

- A) empathy
- B) sensory adaptation
- C) context
- D) illusions

157) You draw two lines of the same length on a piece of paper. You add arrows pointing outward to one and arrows pointed inward to the other. The final drawing illustrates the _____ illusion. 157) ____

- A) Ponzo
- B) reversible figure
- C) Müller-Lyer
- D) moon

158) Research on the Müller-Lyer illusion suggests that 158) ____

- A) it disappears when viewed with one eye.
- B) it is unrelated to the principle of size constancy.
- C) the illusion is not purely visual.
- D) the illusion is equally experienced in societies throughout the world.

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- 159) Explanations of the Müller-Lyer illusion and the Ponzo illusion emphasize _____
A) the fact that the retinal image never changes its size.
B) that we see what we want to see.
C) the tendency to believe what we are told.
D) an overapplication of normal depth cues.
- 160) Which illusion does not yet have a satisfactory explanation? _____
A) visual cliff
B) moon
C) Ponzo
D) Müller-Lyer
- 161) With respect to extrasensory perception, the results of a recent survey of Americans reveals that _____
A) only the uneducated believe that it exists.
B) nearly all believe that it exists, primarily because the evidence for its existence is very strong.
C) a majority believes that it exists.
D) a small minority believes that it exists.
- 162) An individual claims to be aware of events that are currently happening in another part of the world through extrasensory powers. This type of ability is known as _____
A) telepathy.
B) clairvoyance.
C) precognition.
D) telekinesis.
- 163) Careful scrutiny of the methods and findings of parapsychologist J.B. Rhine's early laboratory experiments revealed _____
A) flaws in his methods and problems with his results.
B) some support for the existence of telepathy.
C) no support for telepathy, but support for clairvoyance.
D) no reason to doubt either the methodology or findings.
- 164) In 1974, physician Andrew Weil investigated Uri Geller, an Israeli psychic. What wound up surprising Weil the most was that Geller _____
A) was able to teach Weil his extrasensory powers.
B) could guess the contents of sealed envelopes.
C) could bend metal without touching it and start broken watches.
D) was shown by a famous magician to be faking.
- 165) A study using the "ganzfeld procedure" has an individual in a soundproof chamber, a red floodlight shined at the eyes, which are covered with ping-pong ball halves. Continuous white noise is played through headphones. What is being studied? _____
A) color vision
B) extrasensory perception
C) the Ponzo illusion
D) perception of pitch
- 166) After presenting the case for and the case against extrasensory phenomena, the author of the textbook concludes that _____
A) most individuals have extrasensory abilities but are not aware of them.
B) the number of true psychics is relatively small.

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- C) extrasensory perception probably does exist.
- D) there is no good evidence for the phenomenon.

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

- 167) Through the process of _____, the raw physical energy is converted into neural signals that are sent to the brain. 167) _____
- 168) The first subfield of psychology was _____. It looked at the relationship between physical stimulation and a person's subjective sensations. 168) _____
- 169) The smallest amount of stimulation that can be detected defines the _____; the smallest amount of change in a stimulus that can be detected defines the _____. 169) _____
- 170) Imagine being a participant in a study of sensory thresholds. On a given trial, the experimenter says, "Did you see that?" Later, you learn that on some trials no stimulus was actually presented. This procedure is used by _____ theory, which says that a response is determined not just by the signal, but by the research participant's response criterion as well. 170) _____
- 171) The principle that the magnitude of a just-noticeable difference is a constant proportion of the original stimulus forms the basis for _____ law. 171) _____
- 172) A person whose vision is impaired with astigmatism, likely has an abnormality in the shape of the _____ of the eye. 172) _____
- 173) When you refer to your niece as "Little Blue Eyes," you are really pointing out the color of her _____. 173) _____
- 174) When light enters the eye, it is focused by a transparent structure called the _____; the changing of the shape of this structure in order to fine-tune the focusing of light is known as _____. 174) _____
- 175) If your retina had no _____, it would be difficult for you to see in dim light; if your retina had no _____, you would not be able to see color. 175) _____
- 176) In the eye, cones are densely clustered in the center of the _____, the pinhead-size center of the _____. 176) _____
- 177) When you first enter a darkened movie theater after having been in bright sunlight, you can see little around you. In a few minutes, you can see again. This process of _____ is the opposite of _____, which you will experience when you leave the theater and slowly to re-adjust to the bright outdoors. 177) _____

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- Early in their groundbreaking research, which eventually led to 178) _____
- 178) their being awarded the Nobel Prize, David Hubel and Torsten Wiesel discovered that there are neurons in the visual cortex that only respond to specific aspects of a visual stimulus, such as lines or angles. These neurons are known _____.
- 179) The _____ theory of color vision provides the better explanation for negative afterimages than does the _____ theory of color vision. 179) _____
- 180) Analogous to the white light that results from the combination of all wavelengths in the visible light spectrum, when all frequencies of the sound spectrum are combined they produce a hissing sound known as _____. 180) _____
- 181) Certainly, no one would choose to experience hearing loss. However, if you did suffer an impairment, it would be better for you to have _____ hearing loss, which is caused by damage to the eardrum or to the bones of the middle ear rather than _____ hearing loss, which is caused by inner-ear damage. 181) _____
- 182) Although evidence is scant that there is a human equivalent, researchers have identified chemicals called _____ that are secreted by animals and often act as sexual signals. 182) _____
- 183) There are about ten thousand _____ in the mouth, most on the surface of the tongue. 183) _____
- 184) Your nephew bumps his elbow and begins to cry, so you rub the elbow hard for him and he feels better. This pain-reducing effect is predicted by _____ theory, which states that pain signals can be blocked from the brain when flooded by competing signals. 184) _____
- 185) A gymnast would have no sense of body position and movement of body parts if it were not for the _____ system. 185) _____
- 186) It's a rare individual who can taste words, but it does happen. This triggering of sensations in one sensory modality by another sensory modality is known as _____. 186) _____
- 187) "The whole is greater than the sum of its parts." This expression was the rallying cry of _____ psychology. 187) _____
- 188) Cues for depth perception come in two types. _____ cues require the use of two eyes; _____ cues will work with just one eye. 188) _____
- 189) One binocular depth cue is known as _____. It refers to the fact that the eyes turn inward toward the nose as objects get closer and closer. 189) _____

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189) _____

190) Designed by Eleanor Gibson and Richard walk, the _____ is an apparatus used to test depth perception in infants and animals. 190) _____

191) A research participant is shown two horizontal lines of identical length, one placed above the other on a piece of paper. When asked if one is longer than the other, he responds that the line on top is longer than the one on the bottom. You should recognize this as the _____ illusion. 191) _____

192) It's a beautiful night and a huge moon is just rising. The tendency for people to see the moon as larger when it's low on the horizon than when it's overhead is called the _____ illusion. 192) _____

193) The study of ESP is carried out by _____, who use case studies and experiments to investigate psychic phenomena. 193) _____

194) A friend claims to have extrasensory perception. When you ask which type, she tells you that she doesn't know what it is called, but she is able to perceive remote events via "extra" sensory channels or contact with another person. Although you remain skeptical, you can inform her that this type of ESP is known as _____. 194) _____

ESSAY. Write your answer in the space provided or on a separate sheet of paper.

195) "Tell me when you hear something." "Tell me when you see a light." "Tell me when you think the box in your left hand weighs more than the box in your right hand." These are the types of questions psychophysicists might ask you if you were a research participant in one of their experiments. Describe the various psychophysical procedures and findings related to thresholds, including examples of absolute thresholds for each sense.

196) Are you more likely to say *yes* or *no*? Psychophysics researchers deal with this potential problem by making use of signal-detection theory. Describe this theory and explain how it handles response bias. Then, mention some of the potential applications of this approach to practical, real-world issues.

197) If you can see the words in this question, your sense of vision is working. Diagram the eye and label its parts. Then, describe how light energy reaches the brain from the outside world.

198) A world without color would be gray, indeed! So how do we see color? Describe the two major theories and their supporting evidence. Then, show how both theories may be correct.

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Helen Keller, who could neither see nor hear, wrote that deafness was by far the

- 199) greater handicap. Describe the physical properties of sound and how each is related to our psychological experience. Then, trace the pathway sound travels from outside the body to the brain (use a diagram if it would be helpful). Finally, briefly describe the two types of hearing impairment.
- 200) In addition to vision and audition, humans are equipped with many other senses which have also been important to researchers. Make a list that summarizes some of the major research interests or findings for each of these senses.
- 201) With the flood of neural impulses reaching our brain, it's a wonder we don't get bewildered. What bodily mechanisms and processes prevent us from being confused? Are there cases when individuals experience sensory "crossovers?"
- 202) As perceivers, we select, organize, and interpret input from the world. The Gestalt psychologists were very interested in the way we construct meaningful perceptions, and gave us many basic laws of perception. List and describe the Gestalt laws of organization, then explain how we see the world as constant despite changes in our retinal images.
- 203) Elite athletes are remarkable when it comes to their sensory and perceptual abilities. Being able to hit a moving tennis ball or baseball, or throw up a three-pointer in basketball from long range, requires an almost superhuman ability to detect distances in space. Briefly touch on the various cues we mortals use to help us perceive depth and distance. How have psychologists studied the development of depth perception?
- 204) Sometimes we are fooled and our perceptions of reality are in error. As the author of the textbook points out, magicians, ventriloquists, and artists count on it. Describe three different perceptual illusions and summarize what psychologists know about their causes.
- 205) Does it surprise you that more than half of all Americans believe in extrasensory perception (ESP)? What is ESP and what types of extrasensory powers do psychics claim to have? What is the evidence for and against these claims? How does your view compare to that of the author of the textbook with respect to whether ESP exists?

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- 1) B
- 2) B
- 3) B
- 4) B
- 5) B
- 6) A
- 7) D
- 8) B
- 9) C
- 10) A
- 11) B
- 12) B
- 13) B
- 14) C
- 15) D
- 16) A
- 17) D
- 18) D
- 19) A
- 20) C
- 21) D
- 22) D
- 23) D
- 24) A
- 25) B
- 26) A
- 27) D
- 28) D
- 29) B
- 30) C
- 31) D
- 32) A
- 33) C
- 34) A
- 35) C
- 36) C
- 37) D
- 38) B
- 39) D
- 40) C
- 41) B
- 42) C
- 43) D
- 44) D
- 45) D
- 46) B
- 47) A
- 48) C
- 49) A
- 50) C
- 51) A

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- 52) C
- 53) A
- 54) D
- 55) B
- 56) A
- 57) D
- 58) D
- 59) A
- 60) A
- 61) C
- 62) C
- 63) C
- 64) A
- 65) A
- 66) A
- 67) A
- 68) B
- 69) D
- 70) D
- 71) A
- 72) C
- 73) C
- 74) A
- 75) D
- 76) C
- 77) C
- 78) D
- 79) D
- 80) D
- 81) B
- 82) C
- 83) C
- 84) B
- 85) C
- 86) A
- 87) C
- 88) A
- 89) B
- 90) B
- 91) A
- 92) B
- 93) A
- 94) D
- 95) B
- 96) D
- 97) A
- 98) A
- 99) D
- 100) D
- 101) B
- 102) B
- 103) D

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- 104) B
- 105) B
- 106) B
- 107) B
- 108) D
- 109) D
- 110) D
- 111) B
- 112) C
- 113) C
- 114) A
- 115) B
- 116) A
- 117) B
- 118) D
- 119) C
- 120) C
- 121) B
- 122) B
- 123) B
- 124) C
- 125) B
- 126) A
- 127) B
- 128) A
- 129) C
- 130) A
- 131) D
- 132) C
- 133) B
- 134) B
- 135) C
- 136) B
- 137) A
- 138) C
- 139) A
- 140) D
- 141) B
- 142) B
- 143) B
- 144) D
- 145) D
- 146) A
- 147) A
- 148) A
- 149) C
- 150) B
- 151) D
- 152) D
- 153) A
- 154) C
- 155) B

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- 156) C
- 157) C
- 158) C
- 159) D
- 160) B
- 161) C
- 162) B
- 163) A
- 164) D
- 165) B
- 166) D
- 167) transduction
- 168) psychophysics
- 169) absolute threshold; just-noticeable difference
- 170) signal-detection
- 171) Weber's
- 172) cornea
- 173) irises (iris)
- 174) lens; accommodation
- 175) rods; cones
- 176) fovea; retina
- 177) dark adaptation; light adaptation
- 178) feature detectors
- 179) opponent-process; trichromatic
- 180) white noise
- 181) conduction; sensorineural
- 182) pheromones
- 183) taste buds
- 184) gate-control
- 185) kinesthetic
- 186) synesthesia
- 187) Gestalt
- 188) Binocular; monocular
- 189) convergence
- 190) visual cliff
- 191) Ponzo
- 192) moon
- 193) parapsychologists
- 194) clairvoyance

Answers On The Last Page

- * There are three basic methods for deriving an absolute threshold: ask a research participant to adjust the intensity of a stimulus until it is barely detectable, gradually increase the intensity level and ask the research participant from one trial to the next if he or she detects the stimulus, or vary the stimulus presentation randomly, again checking with the research participant on each trial.
- 195) * There are two methods for determining the difference threshold, or JND. In the first, given one stimulus, adjust the level of another stimulus so that the two are the same; in the second, given two stimuli, report whether they are the same or different.
- * One important finding with respect to thresholds is that there is no point on the intensity scale at which people suddenly detect a stimulus; detection rates increase gradually. Therefore, the threshold is arbitrarily defined as the point at which a stimulus can be detected 50 percent of the time.
- * Another finding concerns Weber's law: the just noticeable difference of a stimulus is a constant proportion despite variations in intensity.
- * Examples of absolute thresholds: vision (lit candle 30 miles away on a dark, clear night); hearing (tick of a watch 20 feet away in total quiet); smell (1 drop of perfume dispersed throughout a 6-room apartment); taste (1 teaspoon of sugar in 2 gallons of water); touch (the wing of a bee falling on your cheek from a height of 1 centimeter).
- 196) * Signal-detection theory was devised to deal with the finding that research participants' responses are influenced not only by the strength of the signal but also by factors such as personality, motivation, and expectations.
- * The procedure requires the presentation of a weak stimulus on some trials, and no stimulus on others. Mathematically, the researcher compares "hit" versus "miss" rates to "false alarms" and can separate out Response bias.
- * Signal-detection theory can be applied to numerous situations, ranging from analyzing why air-traffic controllers are quick to detect danger signals to why doctors overdiagnose certain diseases. Student examples will vary.
- 197) * Student's diagram of the eye should be similar to that presented in Figure 3.4.
- * The diagram of the eye should include the following parts, correctly labeled: cornea, pupil, iris, lens, fovea, retina, optic nerve and blind spot.
- * Light rays first pass through the cornea, which bends light so that it is sharply focused within the eye; light continues through the lens, whose function is to focus an image; light passes through vitreous humor and lands on retina, a multilayered screen of cells that lines the back inside surface of the eyeball; rods and cones are stimulated, activating bipolar cells and ganglion cells in turn; messages carried via optic nerve to optic chiasm, thalamus, then the visual cortex.
- 198) * Trichromatic theory proposed by Thomas Young and Hermann von Helmholtz in the early nineteenth century, argues that there are three types of color cones (red, green, blue); different combinations of cones produce other colors in the eye's "palette."
- * Opponent-process theory states that there are three pairs of visual receptors (opponent colors are blue and yellow, red and green, and black and white). Recordings of neural responses of individual cones confirms that neurons operate in accordance with the opponent-process theory, in the thalamus.
- * Opponent-process theory explains color blindness and afterimages more easily than does trichromatic theory.
- * Both theories may be correct because the human retina does contain red, blue, and green cones, but in thalamus neurons operate in accordance with the opponent-process theory.

Answers On The Last Page

- * The psychological dimensions of pitch, loudness, and timbre are derived from the physical properties of frequency, amplitude, and complexity of sound waves.
- 199) * Sound travels from the outer ear through the auditory canal to vibrate the eardrum; then through bones in the middle ear, oval window, fluid of cochlea, and a membrane that excites hair cells that activate the auditory nerve; signals then cross to the opposite side of brain and pass through the thalamus to the auditory cortex. (If students use a diagram, it should be similar to Figure 3.13).
- * Conduction hearing loss is caused by damage to the eardrum or bones in the middle ear.
- * Sensorineural hearing loss is caused by damage to the structures of the inner-ear, i.e., the cochlea, hair cells, or auditory nerve.
- 200) * Studies of the olfactory system (smell) have looked at sex, age, and cultural variables and the existence of pheromones. Research on smell and taste have obvious commercial applications.
- * The research on the gustatory system (taste) has suggested 4 primary tastes (sweet, salty, sour, bitter); interest has focused as well on nontasters, medium tasters, and supertasters.
- * The research on touch is quite extensive. Distinctions are made between active and passive touch, pressure (there are unique and specialized nerve endings), warmth and cold. Temperature sensations are relative and there are two separate systems; "hot" sensations trigger both warm and cold spots.
- * Pain research is especially relevant. Researchers have studied the subjective experience of pain, psychological factors, gate-control theory, endorphins, and the psychological control of pain.
- * Studies of coordination involve both the kinesthetic system and vestibular system.
- 201) * Different receptors are sensitive only to certain types of energy and stimulate only certain nerve pathways to the brain.
- * Our sensory systems are designed to detect novelty, contrast, and change (sensory adaptation).
- * Selective attention allows us to focus on some sensory input and block out the rest.
- * Synesthesia is a rare condition in which stimulation in one sensory modality triggers sensations in another sensory modality (some experimental support).
- 202) * The Gestalt laws include figure and ground, proximity, similarity, continuity, closure, and common fate.
- * People automatically focus on some objects in the perceptual field to the exclusion of others. What we focus on is called the *figure*; everything else fades into the *ground*.
- * The closer objects are to one another, the more likely they are to be perceived as a unit (proximity).
- * Objects that are similar in shape, size, color, or any other feature tend to be grouped together (similarity).
- * People perceive the contours of straight and curved lines as continuous flowing patterns (continuity).
- * When there are gaps in a pattern that resembles a familiar form, people mentally "close" the gaps and perceive the object as a whole (closure).
- * Objects moving together in the same direction are perceived as belonging to a single group (common fate).
- * We see the world as constant despite changes in our retinal images because of the perceptual constancies: size (tendency to view an object as constant in size despite changes in the size of the retinal image), and shape (tendency to see an object as retaining its form despite changes in orientation).

Answers On The Last Page

- * There are binocular and monocular cues to depth.
 - * Binocular cues include convergence (the eyes turn inward as an object gets closer), and binocular disparity (the closer an object is to a perceiver, the more different the image is in each retina).
 - * Monocular cues include relative image size, texture gradient, linear perspective, interposition, atmospheric perspective, relative elevation, familiarity.
 - * As the distance of an object increases, the size of its retinal image shrinks (retinal image size).
 - * As a collection of objects recedes into the horizon, they appear to be spaced more closely together, which makes the surface texture appear to become denser (texture gradient).
 - * With distance, parallel contours perceptually converge and eventually reach a vanishing point (linear perspective).
 - * Objects nearer to use will partly or completely block our view of more distant objects (interposition).
 - * The air contains a haze of dust particles and moisture that blurs images at a distance (atmospheric perspective).
 - * Below the horizon line, objects that are lower in our field of vision are seen as nearer; above the horizon line, objects that are lower are perceived as farther away (relative elevation).
 - * The presence of a familiar object in a scene helps us judge the sizes and distances of everything around it (familiarity).
 - * One way that depth has been studied with infants is by using the "visual cliff" apparatus. Experiments with the visual cliff indicated the capacity for depth perception may be inborn.
- 204) * In the Müller-Lyer illusion, the perceived length of a line is altered by the position of the lines that enclose it; linear perspective depth cues and principle of size constancy help explain it.
- * In the Ponzo illusion, the length of two equal lines seems different if they appear to be at different distances; perceived length of line is affected by linear perspective cues.
 - * Studies of potential causes have demonstrated cross-cultural differences for the Ponzo and Müller-Lyer illusions.
 - * The moon illusion refers to the fact that a full moon looks larger when it's close to the horizon than when it's high in the sky; its explanation remains something of a perceptual mystery.
- 205) * Three types of ESP are telepathy, clairvoyance, and precognition.
- * Telepathy is thought of as mind-to-mind communication, an ability to receive thoughts transmitted by another person with the usual sensory contact.
 - * Clairvoyance is the ability to perceive remote events via "extra" sensory channels or contact with another person.
 - * Precognition is the ability to see future events, also without direct contact with another person.
 - * The case for ESP comes primarily from the early studies of J. B. Rhine, which demonstrated that some people could apparently "guess" symbols on cards to a degree that was significantly higher than that expected by chance.
 - * The case against ESP is provided by the finding of flaws in Rhine's methods, problems of replication, and the exposure of hoaxes, e.g., by the magician James Randi.
 - * The controversy continues based on studies of Bem and Honorton who used the ganzfeld procedure, which demonstrated that some individuals give statistically higher performance on tasks than is expected by chance.
 - * The author's view is that there is no sound empirical support for the existence of ESP; student views may vary.