

TOTAL ASSESSMENT GUIDE

Chapter 3 Sensation and Perception

Learning Objectives	Factual (Multiple Choice)	Conceptual (Multiple Choice)	Applied (Multiple Choice)	True/False Questions	Short Answer Questions	Essay Questions
QUICK QUIZ 1	1, 4, 6, 7	2, 5, 10	3, 8, 9			
3.1 - How does sensation travel through the central nervous system, and why are some sensations ignored?	2-5, 7-8, 10, 13, 15-16, 19, 24-25	1, 9, 11, 14, 17, 21-23	6, 12, 18, 20	183-184	198	208
3.2 - What is light, and how does it travel through the various parts of the eye?	26-28, 30, 32-35, 38, 41, 43-45, 47-50	29, 39-40, 46	31, 36-37, 42	185-188	199	
3.3 - How do the eyes see, and how do the eyes see different colors?	53-55, 57-58, 60-63, 66, 69-70, 72, 77	56, 59, 67, 75	51-52, 64-65, 68, 71, 73-74, 76	189		209
3.4 - What is sound, and how does it travel through the various parts of the ear?	78, 85, 87-98, 100-101	79, 81-82, 84, 86	80, 83, 99	190-193	200-202	210
3.5 - How do the senses of taste and smell work, and how are they alike?	102-104, 106-114, 116	115	105	194-195	203-204	
3.6 - What allows people to experience the sense of touch, pain, motion, and balance?	117-127, 129, 131-134, 136, 138	130, 137, 139	128, 135, 140	196	205	
3.7 - What are perception, perceptual constancies, and the Gestalt principles of perception?	143, 147-148, 150-151, 153-154, 156-161, 163	141-142, 162	144-146, 149, 152, 155			

Learning Objectives	Factual (Multiple Choice)	Conceptual (Multiple Choice)	Applied (Multiple Choice)	True/False Questions	Short Answer Questions	Essay Questions
3.8 - What is depth perception, and what kinds of cues are important for it to occur?	164-171		172	197	206	211
3.9 - What are visual illusions, and how can they and other factors influence and alter perception?	180-181	173-174, 176, 179	175, 177-178, 182		207	212

Chapter 3: Sensation and Perception
Quick Quiz 1

1. The difference threshold is defined as the degree of change in a stimulus level that is required in order for a person to detect a change _____ of the time.
 - a) 25 percent
 - b) 75 percent
 - c) 50 percent
 - d) 100 percent

2. The process by which unchanging information from the senses of taste, touch, smell, and vision is “ignored” by the sensory receptor cells themselves is called _____.
 - a) transformation
 - b) sensory adaptation
 - c) transmutation
 - d) transduction

3. When we describe someone’s eyes as blue, technically we are referring to his or her blue _____.
 - a) pupils
 - b) irises
 - c) corneas
 - d) scleras

4. The idea that the eye contains separate receptors for red, green, and blue is known as the _____ theory.
 - a) opponent-process
 - b) additive color mixing
 - c) trichromatic
 - d) reductive color mixing

5. The bone that is attached to the eardrum is called the _____; the bone that is connected to the oval window is called the _____.
 - a) anvil (incus); stirrup (stapes)
 - b) hammer (malleus); anvil (incus)
 - c) stirrup (stapes); hammer (malleus)
 - d) hammer (malleus); stirrup (stapes)

6. Which is the newest of the five basic tastes to be discovered?
 - a) bitter
 - b) sour
 - c) sweet
 - d) umami, or brothy

7. Which is the best description of the vestibular senses?
 - a) They have to do with touch, pressure, temperature, and pain.
 - b) They have to do with the location of body parts in relation to the ground and to each other.
 - c) They have to do with movement and body position.
 - d) They have to do with your location as compared to the position of the sun.

8. Suppose you look at a given figure and decide that, depending on how you look at it, it can be perceived as either an old woman or a young lady. Such a figure would be said to be _____.
 - a) mixed
 - b) confused
 - c) reversible
 - d) inconsistent

9. When Bill looks at his lamp alternately with his left eye and his right eye, the image seems to jump from one position to another. This phenomenon illustrates _____.
- the Gestalt principle of similarity
 - binocular disparity
 - interposition
 - the Gestalt principle of proximity
10. An illusion _____.
- is the same thing as a vision
 - is due to the action of the rods versus the cones in the retina
 - is a perception that does not correspond to reality
 - corresponds directly to something that you dreamed

Chapter 3
Quick Quiz 1 Answers

1. Answer: c	LO: 3.1	Page(s): 82	Type: Factual	Diff: 3
2. Answer: b	LO: 3.1	Page(s): 83	Type: Conceptual	Diff: 3
3. Answer: b	LO: 3.2	Page(s): 85-86	Type: Applied	Diff: 2
4. Answer: c	LO: 3.3	Page(s): 88	Type: Factual	Diff: 2
5. Answer: d	LO: 3.4	Page(s): 93-94	Type: Conceptual	Diff: 2
6. Answer: d	LO: 3.5	Page(s): 97	Type: Factual	Diff: 3
7. Answer: c	LO: 3.6	Page(s): 99	Type: Factual	Diff: 2
8. Answer: c	LO: 3.7	Page(s): 103	Type: Applied	Diff: 1
9. Answer: b	LO: 3.8	Page(s): 107	Type: Applied	Diff: 2
10. Answer: c	LO: 3.9	Page(s): 108	Type: Conceptual	Diff: 2

3 Sensation and Perception

Main Test Bank Questions

Key: Answer, Page, Type, Learning Objective, Level

Type

A=Applied

C=Conceptual

F=Factual

Level

(1)=Easy; (2)=Moderate; (3)=Difficult

LO=Learning Objective

SG=Used in Study Guide

p=page

MULTIPLE CHOICE

The ABCs of Sensation

Learning Objective 3.1 - How does sensation travel through the central nervous system, and why are some sensations ignored?

1. _____ occur when certain receptors located in the various sensory organs are activated, allowing various forms of outside stimuli to become neural signals in the brain.

- a) Perceptions

Incorrect. Perception is the mental process of sorting, identifying, and arranging the raw data of experience into meaningful patterns. Sensations are the raw data of experience.

- b) Emotions
c) Cognitions
d) Sensations

Correct. Sensations are based on receptor activation.

ANS: d, p. 82, C, LO=3.1, (1)

% correct 79 a= 12 b= 2 c= 7 d= 79 r = .35

2. Activation of the receptors by stimuli is called _____.

- a) perception

Incorrect. Perception is the mental process of sorting, identifying, and arranging the raw data of experience into meaningful patterns. Sensation is the activation of the receptors.

- b) sensation

Correct. Sensation is the activation of the receptors by stimuli.

- c) adaptation
d) habituation

ANS: b, p. 82, F, LO=3.1, (1)

% correct 83 a= 10 b= 83 c= 4 d= 2 r = .42

3. Cells that are triggered by light, vibrations, sounds, touch, or chemical substances are called _____.

a) ganglion cells

Incorrect. Ganglion cells are connector neurons that come into play later in the process. They take information from receptors and related cells and then send it on for more processing. Receptors respond directly to stimuli.

b) bipolar cells

c) ossicles

d) sensory receptors

Correct. Cells that are triggered by light, vibrations, sounds, touch, or chemical substances are called sensory receptors; examples are rods, cones, and hair cells.

ANS: d, p. 82, F, LO=3.1, (2)

4. The term just noticeable difference is synonymous with _____.

a) separation threshold

b) response threshold

Incorrect. Response threshold is not a term used in the text. The term just noticeable difference is the correct synonym.

c) difference threshold

Correct. The term just noticeable difference is synonymous with difference threshold and refers to the detection of change.

d) absolute threshold

ANS: c, p. 82, F, LO=3.1, (2)

% correct 33 a= 4 b= 44 c= 33 d= 19 r = .25

5. The difference threshold is defined as the degree of change in a stimulus level that is required in order for a person to detect a change _____ of the time.

a) 25 percent

b) 75 percent

Incorrect. The difference threshold is defined as the degree of change in a stimulus level that is required in order for a person to detect it 50 percent of the time.

c) 50 percent

Correct. The difference threshold is defined as the degree of change in a stimulus level that is required in order for a person to detect it 50 percent of the time.

d) 100 percent

ANS: c, p. 82, F, LO=3.1, (3)

6. Suppose Maria is painting while the sun is setting; once she notices that the room is getting darker, she decides to call it quits for the day. This example illustrates the role of _____.

a) threshold

b) a just noticeable difference

Correct. This example demonstrates a just noticeable difference, because Maria identifies that the room is gone sufficiently dark to necessitate quitting work.

c) absolute threshold

Incorrect. The absolute threshold is the minimum amount of information must be received in order to be detected 50% of the time. This example demonstrates a just noticeable difference.

d) bias

ANS: b, p. 82, A, LO=3.1, (2)

7. The principle that the just noticeable difference of any given sense is a constant fraction or proportion of the stimulus being judged is called _____.

a) the opponent-process principle

Incorrect. The opponent-process principle refers to a concept regarding color vision.

b) the doctrine of specific nerve energies

c) the phi phenomenon

d) Weber's law

Correct. Weber's law describes how change detection is based on a proportion of the stimulus intensity.

ANS: d, p. 82, F, LO=3.1, (3)

% correct 83 a= 5 b= 9 c= 3 d= 83 r = .44

% correct 82 a= 6 b= 7 c= 3 d= 82 r = .47

8. Ernest Weber provided a formulation that is used to determine the _____.

- a) largest detectable stimulus
- b) smallest detectable stimulus

Incorrect. Weber did not focus on the absolute threshold but is known instead for his work on the just noticeable difference (jnd).

- c) largest detectable difference between two stimuli
- d) smallest detectable difference between two stimuli

Correct. Weber provided a formulation that is used to predict the smallest detectable difference between two stimuli.

ANS: d, p. 82, F, LO=3.1, (3)

9. The lowest level of stimulation that a person can consciously detect a stimulus 50 percent of the time it is presented is called the _____.

- a) absolute threshold

Correct. The point at which a person can detect a stimulus 50 percent of the time it is presented is called the absolute threshold.

- b) range threshold
- c) difference threshold

Incorrect. The difference threshold is the smallest difference between two stimuli that a person can detect 50 percent of the time it is presented.

- d) noticeable threshold

ANS: a, p. 82, C, LO=3.1, (3) SG

% correct 63 a= 63 b= 7 c= 21 d= 10 r = .25

% correct 78 a= 78 b= 4 c= 18 d= 0 r = .23

10. The smallest amount of a particular stimulus required to produce any sensation at all in the person to whom the stimulus is presented is the _____.

- a) absolute threshold

Correct. The smallest amount of a particular stimulus required to produce any sensation at all in a person is the absolute threshold. Below that level the stimulus cannot be detected reliably.

- b) minimum threshold

Incorrect. The smallest amount of a stimulus required to produce any sensation at all in a person is the absolute threshold. The term minimum would seem to be correct, but it is not used.

- c) difference threshold
- d) noticeable threshold

ANS: a, p. 82, F, LO=3.1, (1)

11. The lowest stimulus intensity required for detection is the _____, and the smallest noticeable difference between a standard stimulus intensity and another stimulus value is the _____.

- a) absolute threshold; difference threshold

Correct. The lowest stimulus intensity required for detection is the absolute threshold, and the smallest noticeable difference between a standard stimulus intensity and another stimulus value is the difference threshold.

- b) base value; just noticeable difference (jnd)
- c) response criterion; sensory constant
- d) difference threshold; absolute threshold

Incorrect. The lowest stimulus intensity required for detection is the absolute threshold, whereas the smallest noticeable difference between a standard stimulus intensity and another stimulus value is the difference threshold.

ANS: a, p. 82, C, LO=3.1, (3)

% correct 85 a= 85 b= 10 c= 1 d= 4 r = .44

12. When Ann went to her doctor, he gave her a hearing test. During the test, the doctor presented tones to Ann through earphones. The tones started at a low intensity and then became louder. The doctor asked Ann to raise her hand whenever she started to hear a sound. The doctor was testing Ann's _____.

- a) auditory convergence
- b) absolute threshold

Correct. The doctor was testing Ann's absolute threshold, or the softest sound she could detect.

- c) refractory threshold
- d) difference threshold

Incorrect. The doctor was testing Ann's absolute threshold, not her ability to detect a difference or change.

ANS: b, p. 82, A, LO=3.1, (3)

% correct 58 a= 14 b= 58 c= 3 d= 26 r = .29

13. The lowest intensity of a particular stimulus that enables the average person to detect that stimulus 50 percent of the time it is presented is called the _____.

- a) absolute threshold

Correct. The absolute threshold is the lowest intensity of a particular stimulus that enables the average person to consciously detect that stimulus 50 percent of the time it is presented.

- b) difference threshold
- c) just noticeable difference
- d) psychophysical threshold

Incorrect. There is no such term as psychophysical threshold.

ANS: a, p. 82, F, LO=3.1, (2)

% correct 75 a= 75 b= 15 c= 7 d= 3 r = .38

14. We can see a candle flame at 30 miles on a clear, dark night, and we can hear the tick of a watch 20 feet away in a quiet room. These two facts are examples of _____.

- a) just noticeable difference
- b) difference threshold

Incorrect. Difference threshold has to do with the detection of changes, not the lowest detectable stimulus level.

- c) adaptation
- d) absolute thresholds

Correct. These are absolute thresholds, as they are at the lower limits of our detection.

ANS: d, p. 82, C, LO=3.1, (2)

15. The absolute threshold for human vision is a candle flame seen from _____ on a dark, clear night.

- a) 1 mile
- b) 15 miles

Incorrect. The absolute threshold for human vision is a candle flame seen from 30 miles.

- c) 7.5 miles
- d) 30 miles

Correct. The absolute threshold for human vision is a candle flame seen from 30 miles.

ANS: d, p. 82, F, LO=3.1, (3)

% correct 55 a= 22 b= 11 c= 12 d= 55 r = .32

16. The absolute threshold for human hearing is the tick of a watch from _____ under very quiet conditions.

- a) 20 feet

Correct. The absolute threshold for human hearing is the tick of a watch from 20 feet under very quiet conditions.

- b) 60 feet
- c) 40 feet
- d) 80 feet

Incorrect. The absolute threshold for human hearing is the tick of a watch from 20 feet under very quiet conditions.

ANS: a, p. 82, F, LO=3.1, (3)

% correct 66 a= 66 b= 17 c= 15 d= 1 r = .25

17. Some people believe that _____ are messages that can be sent to consumers, prompting them to buy a product without their being aware of receiving such messages.

- a) selective perceptions
- b) subliminal stimuli

Correct. Subliminal stimuli are believed to operate at an unconscious level, meaning that people would be unaware of having perceived them.

- c) inductive perceptions
- d) below threshold perceptions

Incorrect. Below threshold perceptions would refer to stimuli that are too weak to be perceived, not necessarily to those that are perceived on an unconscious level.

ANS: b, p. 83, C, LO=3.1, (3)

% correct 96 a= 4 b= 96 c= 0 d= 0 r = .24

18. Laverne goes to a movie theater to watch her favorite movie. About halfway through the movie she becomes aware of an overpowering hunger for popcorn. What she does not realize is that throughout the first part of the movie, a message saying "Eat Popcorn!" was repeatedly flashed on the screen at a speed too fast for her to be consciously aware of it. If her desire for popcorn is due to that message, she is responding to _____.

- a) selective perception

Incorrect. Selective perception would refer to a choice between above threshold stimuli.

- b) subliminal perception

Correct. She is responding to subliminal perception, which is not consciously detected.

- c) cognitive restructuring
- d) stroboscopic perception

ANS: b, p. 83, A, LO=3.1, (3)

% correct 88 a= 4 b= 88 c= 3 d= 4 r = .26

19. One problem with Vicary's study of subliminal perception is that _____.

- a) it demonstrated the validity of the concept of subliminal perception

Incorrect. Vicary's study never happened, and subliminal perception has not been shown to be useful.

- b) it did not prove that people actually bought more colas and popcorn for several months after seeing the movie
- c) it showed that subliminal stimuli had only very small effects on consumer patterns
- d) it never happened

Correct. As it turned out, Vicary's study never actually happened, and other researchers were unable to duplicate the results Vicary claimed he'd gotten.

ANS: d, p. 83, F, LO=3.1, (2)

20. When you first put your hat on, you can feel it quite easily. But after a while, you forget that you are wearing a hat at all—the sensation is gone. What happens?

- a) sensory fatigue

Incorrect. Sensory fatigue is not the proper term, though it sounds like it could be correct.

- b) subliminal perception
- c) habituation

Correct. Habituation is the process by which the lower centers of the brain sort through sensory stimulation and "ignore," or prevent conscious attention to, stimuli that do not change.

- d) perceptual defense

ANS: c, p. 83, A, LO=3.1, (2)

% correct 93 a= 4 b= 4 c= 93 d= 0 r = .19

21. The process by which unchanging information from the senses of taste, touch, smell, and vision is "ignored" by the sensory receptor cells themselves is called _____.

- a) transformation
- b) sensory adaptation

Correct. The process by which unchanging information from the senses of taste, touch, smell, and vision is "ignored" by the sensory receptors is called adaptation, and it prevents us from being bombarded by constant sensations.

c) transmutation

Incorrect. Transmutation is the process of turning one object or element into another and is not relevant to the sensory process described.

d) transduction

ANS: b, p. 83, C, LO=3.1, (3)

% correct 93 a= 4 b= 93 c= 4 d= 0 r = .21

22. In the process known as _____, sensory receptors become less sensitive to repeated presentations of the same stimulus.

a) sensation

b) sensory fatigue

Incorrect. There is no such term as sensory fatigue.

c) sensory adaptation

Correct. Sensory adaptation is the process whereby receptors become less responsive to an unchanging stimulus.

d) discrimination

ANS: c, p. 83, C, LO=3.1, (2)

23. Our eyes don't adapt completely to a repeated visual stimulus because _____.

a) eye movements called microsaccades cause the stimulus image to vibrate slightly on the retina

Correct. Microsaccades cause the stimulus image to vibrate slightly on the retina and not fade.

b) the optic chiasm enables fibers to carry messages to all parts of the brain

c) ganglion cells fire continuously

Incorrect. The fact that ganglion cells fire continuously does not explain why our eyes do not adapt completely to a repeated visual stimulus.

d) visual acuity is greatest in the fovea

ANS: a, p. 84, C, LO=3.1, (2)

24. Because of what you have learned about sensory adaptation, you might think that if you stared at a picture for a long period of time, the image you see would eventually fade. This would be the case if not for the tiny vibrations of your eye called _____.

a) glissades

Incorrect. Glissades are slow, tracking eye movements. Saccades cause the stimulus image to drift slightly on the retina and not fade.

b) microsaccades

Correct. Microsaccades cause the stimulus image to drift slightly on the retina and not fade.

c) habituation movements

d) light wave responses

ANS: b, p. 84, F, LO=3.1, (1)

25. Microsaccades are _____.

a) tiny vibrations of the eye that prevent images from fading

Correct. Microsaccades are the tiny vibrations of the eye that prevent images from fading by avoiding image stabilization.

b) the tiny bones in the ear that transmit sound waves to the cochlea

Incorrect. The tiny bones in the ear are called the hammer, anvil, and stirrup.

c) the photoreceptors in the eye responsible for night vision

d) pain receptors in the limbs

ANS: a, p. 84, F, LO=3.1, (1)

The Science of Seeing

Learning Objective 3.2 - What is light, and how does it travel through the various parts of the eye?

26. The term photon refers to _____.

- a) a tiny packet of light waves.

Correct. Tiny packets of light waves are called photons.

- b) a torpedo used by the USS *Enterprise*
- c) the smallest unit of sound
- d) the property of light that gives us the perception of color

Incorrect. The smallest possible unit of light is known as a photon.

ANS: a, p. 84, F, LO=3.2, (1)

27. Light is said to have a dual nature, meaning it can be thought of in two different ways. These two ways are _____.

- a) particles and photons

Incorrect. Light comes in indivisible particles but demonstrates the properties of waves.

- b) waves and frequencies
- c) particles and waves

Correct. Light comes in indivisible particles but demonstrates the properties of waves.

- d) dark light, daylight

ANS: c, p. 84, F, LO=3.2, (2) SG

28. Which pairing of name and property of light is correct?

- a) Helmholtz; particle nature (photon)

Incorrect. At Helmholtz's time, the true dual nature of light (waves and particle) was not yet understood.

- b) Holstein; wave nature
- c) Newton; wave nature
- d) Einstein; wave packet (photon)

Correct. Einstein's work was central to our understanding of the dual nature of light.

ANS: d, p. 84, F, LO=3.2 (1)

29. The aspect of color that corresponds to names such as red, green, and blue is _____.

- a) brightness

Incorrect. Brightness refers to our perception of light's intensity. The aspect of color that corresponds to names such as red, green, and blue is hue.

- b) saturation
- c) hue

Correct. Hue refers to the names we give to various colors.

- d) fine detail

ANS: c, p. 84-85, C, LO=3.2, (2)

% correct 44 a= 40 b= 15 c= 44 d= 0 r = .33

30. The wavelength of the light reaching your eyes determines, in part, what _____ you see.

- a) brightness

Incorrect. Brightness is determined in part by stimulus intensity. Wavelength determines hue.

- b) saturation
- c) hue

Correct. Wavelength determines hue.

- d) fine detail

ANS: c, p. 84-85, F, LO=3.2, (1)

31. Jamie, a toddler, is making distinctions about various aspects of color in terms of whether a toy looks red, blue, and so on. In doing so, she is referring to the toy's _____.

- a) amplitude
- b) lightness

Incorrect. The lightness of a particular light wave refers to the intensity of brightness that we see.

- c) hue

Correct. The specific type of color that we see is a reference to the hue of the light that is being received by our eyes.

- d) reflection

ANS: c, p. 85, A, LO=3.2, (1)

32. The shortest wavelengths that we can see are experienced as _____ colors.

- a) red

Incorrect. Red is associated with the longest wavelengths, not the shortest.

- b) blue

Correct. Blue has the shortest wavelength.

- c) green

- d) yellow

ANS: b, p. 85, F, LO=3.2, (1)

% correct 35 a= 51 b= 35 c= 5 d= 8 r = .24

33. The longest wavelengths we can see are experienced as _____ colors.

- a) red

Correct. Red has the longest wavelength of light that we can perceive.

- b) blue-violet

- c) green

- d) yellow

Incorrect. Wavelengths that appear yellow are toward the middle of the visible spectrum.

ANS: a, p. 85, F, LO=3.2, (1)

% correct 46 a= 46 b= 43 c= 2 d= 10 r = .22

34. What color would you report seeing if a researcher projects the longest wavelength in the visible spectrum onto a screen?

- a) red

Correct. The human eye sees the longest wavelengths as the color red.

- b) blue

Incorrect. The human eye sees the shortest, not the longest, wavelengths as the color blue. The longest wavelengths appear red.

- c) yellow

- d) violet

ANS: a, p. 85, F, LO=3.2, (1)

35. The visible spectrum refers to the _____.

- a) portion of the whole spectrum of light that is visible to the human eye

Correct. The visible spectrum refers to the portion of the whole spectrum of light that is visible to the human eye.

Wavelengths outside the visible spectrum of approximately 400 to 700 nanometers are not visible to humans.

- b) effect of intensity on how we see dark to grey to white

- c) effect of the sound density on the perceptions of those with synesthesia

- d) well-known fact that colors are less visible to some men's eyes

Incorrect. The visible spectrum refers to the portion of the whole spectrum of light that is visible to the human eye.

ANS: a, p. 85, F, LO=3.2, (1)

% correct 95 a= 95 b= 5 c= 0 d= 1 r = .37

36. Joachim and Maricella are going for a romantic walk in the park after an afternoon storm. Maricella looks up in the sky and sees a rainbow. She exclaims, "How beautiful!" Joachim, being something of a geek, might correctly say _____

- a) "You are just seeing the visible spectrum."

Incorrect. Joachim would be correct to say she is seeing the visible spectrum, but statements b and c are also correct.

- b) "That's because you are seeing all the wavelengths of light we can see from short to long."
- c) "That's because different wavelengths lead to the perception of different colors."
- d) All of these things would be true if Joachim said them.

Correct. All of these statements are correct. In viewing a rainbow, we see the visible spectrum with all the wavelengths of light, and the different wavelengths lead to the perception of different colors.

ANS: d, p. 85, A, LO=3.2, (3)

37. Erin has learned to create a "truly red" light by focusing on only one wavelength of the visible spectrum. She is most likely to be concerned with which property of light?

- a) brightness

Incorrect. Saturation, also known as purity, is the correct property of light. A single wavelength usually looks highly saturated.

- b) decibels
- c) accommodation
- d) saturation

Correct. Saturation, also known as purity, is the correct property of light. A single wavelength usually looks highly saturated.

ANS: d, p. 85, A, LO=3.2, (3)

38. Why do you see a lemon as yellow?

- a) The lemon absorbs yellow wavelengths in the yellow region of the spectrum.

Incorrect. If the lemon absorbed wavelengths, it would not look yellow. The light must be reflected in order for it to reach the eye.

- b) The lemon might reflect only wavelengths in the yellow region of the spectrum.

Correct. The lemon reflects only wavelengths in the yellow region of the spectrum.

- c) The lemon absorbs red and blue wavelengths.
- d) The lemon reflects all wavelengths of light other than yellow.

ANS: b, p. 85, C, LO=3.2, (3)

% correct 49 a= 13 b= 49 c= 15 d= 22 r = .29

39. When light waves enter the eye, they first pass through the _____.

- a) iris
- b) lens

Incorrect. The lens is transparent but is located inside the eye. The cornea is the outer covering.

- c) pupil
- d) cornea

Correct. When light waves enter the eye, they first pass through the cornea.

ANS: d, pp. 85-86, F, LO=3.2, (1) SG

% correct 66 a= 3 b= 15 c= 16 d= 66 r = .31

40. What is the pupil of the eye?

- a) It is the white part of the eye.
- b) It is the colored part of the eye.

Incorrect. The colored part of the eye is the iris.

- c) It is the location of the visual receptors.
- d) It is the small opening in the center of the eye.

Correct. The pupil is the small opening in the center of the eye.

ANS: d, pp. 85-86, C, LO=3.2, (2)

% correct 93 a= 0 b= 3 c= 4 d= 93 r = .28

% correct 92 a= 1 b= 5 c= 1 d= 92 r = .29

41. The pupil is the _____.

- a) opening in the center of the iris

Correct. The pupil is the opening in the center of the iris and controls the amount of light entering the eye.

- b) white of the eye
- c) colored part of the eye

Incorrect. The iris is the colored part of the eye that controls pupil size. The pupil is the opening in the center of the iris.

- d) lining in the back of the eyeball

ANS: a, pp. 85-86, F, LO=3.2, (1)

% correct 97 a= 97 b= 0 c=1 d= 2 r = .47

42. When we describe someone's eyes as blue, technically we are referring to his or her blue _____.

- a) pupils

Incorrect. The pupil is the hole formed by the iris.

- b) irises

Correct. The iris is the colored part of the eye.

- c) corneas
- d) scleras

ANS: b, pp. 85-86, A, LO=3.2, (2)

% correct 93 a= 4 b= 93 c= 0 d= 4 r = .19

43. The colored part of the eye that contains muscles to contract or expand the pupil is the _____.

- a) lens
- b) iris

Correct. The colored part of the eye that contains muscles to contract or expand the pupil is the iris.

- c) fovea
- d) cornea

Incorrect. The cornea is the clear, transparent covering of the eye. The colored part of the eye is the iris.

ANS: b, pp. 85-86, F, LO=3.2, (1)

44. The clear, transparent protective coating over the front part of the eye is the _____.

- a) fovea
- b) sclera
- c) cornea

Correct. The clear, transparent protective coating over the front part of the eye is the cornea. It focuses most of the light entering the eye.

- d) iris

Incorrect. The iris is the colored part of the eye that controls the opening of the pupil. The clear, transparent protective coating over the front part of the eye is the cornea.

ANS: c, pp. 85-86, F, LO=3.2, (1)

45. The amount of light entering the eye is controlled by the _____.

- a) cornea
- b) lens

Incorrect. The lens acts to focus the light, finishing the process begun by the cornea. The pupil controls the amount of light entering the eye.

- c) iris

Correct. The iris controls the amount of light entering the eye.

- d) retina

ANS: c, p. 86, F, LO=3.2, (1)

% correct 72 a= 7 b= 13 c= 72 d= 9 r = .31

46. Light is focused on the retina by the _____.

- a) pupil

Incorrect. The pupil controls the amount of light entering the eye. Light is focused on the retina by the lens.

- b) ganglion cells
- c) lens

Correct. Light is focused on the retina by the lens.

d) iris

ANS: c, p. 86, C, LO=3.2, (1)

% correct 85 a= 4 b= 4 c= 85 d= 7 r = .29

47. The change in the shape of the lens in order to focus on a visual image is known as _____.

- a) fixation
- b) divergence
- c) convergence

Incorrect. Convergence is what occurs when the two eyes move in concert to coordinate image location of the fovea of each eye.

d) visual accommodation

Correct. Accommodation is the change in the shape of the lens to focus and bend the light, which is more or less based on target distance.

ANS: d, p. 86, F, LO=3.2, (1)

% correct 44 a= 0 b= 33 c= 33 d= 44 r = .45

48. Which component of the eye contains the visual receptors?

- a) sclera
- b) retina

Correct. The retina contains the visual receptors, called rods and cones.

c) cornea

d) posterior chamber

Incorrect. The posterior chamber is a hollow space in the back of the eye. The retina contains the visual receptors.

ANS: b, p. 86, F, LO=3.2, (2)

% correct 84 a= 1 b= 84 c= 12 d= 3 r = .32

% correct 85 a= 0 b= 85 c= 11 d= 4 r = .22

49. Bundles of axons from ganglion cells make up the _____.

- a) fovea
- b) optic nerve

Correct. Bundles of axons from ganglion cells make up the optic nerve.

c) optic schism

Incorrect. Optic schism is not a real term.

d) rods and cones

ANS: b, pp. 86-87, F, LO=3.2, (2)

% correct 77 a= 13 b= 77 c= 3 d= 7 r = .43

50. The place in the retina where the axons of all the ganglion cells come together to leave the eye and where there are no rods and cones is called the _____.

- a) fovea
- b) blind spot

Correct. The blind spot is the place where the ganglion cell axons come together and where there are no receptors for sight.

c) optic chiasm

Incorrect. The optic chiasm is the junction between the optic nerves from both eyes. The blind spot is the place where the axons come together to leave the eye.

d) optic nerve

ANS: b, pp. 86-87, F, LO=3.2, (1)

Learning Objective 3.3 - How do the eyes see, and how do the eyes see different colors?

51. It is difficult to distinguish between colors at night because _____.

- a) we are seeing primarily with the cones
- b) rods do not adapt to the dark

c) we are seeing primarily with the rods

Correct. It is difficult to distinguish between colors at night because we are seeing primarily with the rods, which are not involved in color processing.

d) we are used to seeing mostly with the fovea

Incorrect. The fovea is full of cones, which do not function at night or at low light levels.

ANS: c, pp. 87-89, A, LO=3.3, (3)

% correct 76 a= 14 b= 7 c= 76 d= 2 r = .45

% correct 67 a= 19 b= 14 c= 67 d= 0 r = .55

52. Which of the following phenomena is a function of the distribution of the rods and cones in the retina?

a) The moon looks much larger near the horizon than it looks when it is higher in the sky.

b) The light from distant stars moving rapidly away from us is shifted toward the red end of the spectrum.

c) Stars can be seen only with difficulty during the daytime.

Incorrect. A dim star may disappear when you look directly at it but reappear when you look to one side of it as it falls on the rods.

d) A dim star viewed at night may disappear when you look directly at it but reappear when you look to one side of it.

Correct. Cones are at the center of the retina and do not function well at night, but rods, located on the periphery of the retina, see well in dim light.

ANS: d, pp. 88, A, LO=3.3, (3)

53. Each eye has about _____ million rods.

a) 1

Incorrect. Each eye has about 120 million rods.

b) 75

c) 25

d) 120

Correct. Each eye has about 120 million rods.

ANS: d, p. 88, F, LO=3.3, (3)

54. Which of the following is true of rods?

a) They respond to color.

Incorrect. Cones, not rods, respond to color.

b) They are found mainly in the fovea.

c) They operate mainly in the daytime.

d) They are responsible for night vision.

Correct. Rods are responsible for night vision.

ANS: d, p. 88, F, LO=3.3, (2)

% correct 71 a= 9 b= 5 c= 14 d= 71 r = .51

55. Receptor cells in the retina responsible for night vision are _____.

a) bipolar cells

b) ganglion cells

c) rods

Correct. Receptor cells in the retina responsible for night vision are rods.

d) cones

Incorrect. Cones are for day vision. Receptor cells in the retina responsible for night vision are rods.

ANS: c, p. 88, F, LO=3.3, (1)

56. When you enter a darkened room (e.g., a movie theatre) you will find it hard to see at first, but shortly afterward you will be able to see much better. This phenomenon is referred to as:

a) color adaptation.

b) cone adaptation.

c) dark adaptation.

Correct. Dark adaptation is the process by which our eyes adjust to a dimmer environment.

d) light adaptation.

Incorrect. Light adaptation is the process by which our eyes adjust to a brighter environment.

ANS: C, p. 88, A, LO=3.3, (1)

57. Which of the following is true about cones?

- a) They are responsible for black and white vision.
- b) They are found mainly in the center of the eye.

Correct. Cones are found mainly in the center of the eye.

- c) They operate mainly at night.
- d) They respond only to black and white.

Incorrect. Cones are responsible for color.

ANS: b, p. 88, F, LO=3.3, (2) SG

% correct 58 a= 27 b= 58 c= 3 d= 12 r = .54

58. Receptor cells in the retina responsible for color vision and fine acuity are _____.

- a) bipolar cells
- b) ganglion cells
- c) rods

Incorrect. Rods are for night vision and have poor acuity. Receptor cells in the retina responsible for color vision are cones.

- d) cones

Correct. Receptor cells in the retina responsible for color vision are cones.

ANS: d, p. 88, F, LO=3.3, (1)

% correct 77 a= 2 b= 3 c= 18 d= 77 r = .39

59. Why are cones in the fovea capable of sending detailed and precise visual information?

- a) They connect to bipolar cells in a one-to-one fashion.

Correct. Each foveal cone has a direct link to a bipolar cell, which leads to finer acuity.

- b) Compared to rods, their speed of transmission is faster.
- c) Their cell bodies are highly responsive to neurotransmitters.
- d) They connect directly to brain centers responsible for visual processing.

Incorrect. Cones in the fovea connect to bipolar cells in a one-to-one fashion. Cones do not connect directly to the brain.

ANS: a, p. 88, C, LO=3.3, (3)

% correct 55 a= 55 b= 7 c= 4 d= 34 r = .24

% correct 70 a= 7 b= 8 c= 70 d= 14 r = .19

60. The fovea is made up of _____.

- a) all rods and no cones
- b) mostly cones with some rods

Incorrect. The fovea is made up of all cones and no rods.

- c) mostly rods with some cones
- d) all cones and no rods

Correct. The fovea is made up of all cones and no rods.

ANS: d, p. 88, F, LO=3.3, (3)

% correct 21 a= 13 b= 41 c= 25 d= 21 r = .26

61. Helmholtz's explanation of color vision is called the _____.

- a) opponent-process theory

Incorrect. Helmholtz's explanation of color vision is called the trichromatic theory.

- b) additive color mixing theory
- c) trichromatic theory

Correct. Helmholtz's explanation of color vision is called the trichromatic theory.

- d) reductive color mixing theory

ANS: c, p. 88, F, LO=3.3, (1)

% correct 59 a= 29 b= 10 c= 59 d= 3 r = .22

62. The idea that the eye contains separate receptors for red, green, and blue is known as the _____ theory.

a) opponent-process

Incorrect. The opponent-process theory is based on red versus green and yellow versus blue.

b) additive color mixing

c) trichromatic

Correct. The idea that the eye contains separate receptors for red, green, and blue is known as the trichromatic theory.

d) reductive color mixing

ANS: c, p. 88, F, LO=3.3, (2)

% correct 67 a= 19 b= 7 c= 67 d= 8 r = .49

63. The explanation of color vision that was proposed first by Young and later by Helmholtz is called the _____.

a) opponent-process theory

Incorrect. Young's and Helmholtz's explanation of color vision is called the trichromatic theory.

b) additive color mixing theory

c) trichromatic theory

Correct. Young's and Helmholtz's explanation of color vision is called the trichromatic theory.

d) reductive color mixing theory

ANS: c, p. 88, F, LO=3.3, (2)

% correct 59 a= 29 b= 10 c= 59 d= 3 r = .22

64. If an artist were to blend red, green, and blue paints together, the result would look _____.

a) like nonspectral colors

b) black

Correct. A mix of red, green, and blue paints would look like black.

c) like white light

Incorrect. A mix of red, green, and blue light would look like white, whereas mixing these same colors of paint would result in a blackish mess.

d) complimentary

ANS: b, pp. 88-89, A, LO=3.3, (3)

65. If an artist were to blend red, green, and blue lights together by focusing lights of those three colors on one common spot, the result would look _____.

a) like nonspectral colors

b) black

Incorrect. A mix of red, green, and blue light would look like white, whereas mixing these same colors of paint would result in a blackish mess.

c) like white light

Correct. A mix of red, green, and blue light would look like white.

d) complimentary

ANS: c, pp. 88-89, A, LO=3.3, (3)

66. Who actually found three types of cones in the retina?

a) Young and Helmholtz

Incorrect. Young and Helmholtz theorized about three types of cones; they did not actually find them.

b) Hering

c) Wald and Brown

Correct. Wald and Brown actually found three types of cones.

d) Smith and Wesson

ANS: c, p. 89, F, LO=3.3, (3)

67. If you stare for 30 seconds at a red object and then look at a blank sheet of white paper, you will see a greenish image of the object. This phenomenon BEST supports the _____ theory of color vision.

- a) Grieco trichromatic
- b) opponent-process

Correct. The opponent-process theory sees the cones as being arranged in pairs, and red is paired with green. The greenish afterimage demonstrates that fatiguing the eye produces opposite, or opponent, perceptions.

- c) Helmholtz trichromatic

Incorrect. The Helmholtz trichromatic theory proposed three types of cones: red cones, blue cones, and green cones, one for each of the three primary colors of light.

- d) Hering's vibration

ANS: b, pp. 89-90, A, LO=3.3, (3)

% correct 58 a= 27 b= 58 c= 14 d= 2 r = .41

68. The trichromatic and opponent-process theories of color vision are not in conflict because each corresponds to _____.

- a) a different portion of the spectrum

Incorrect. The trichromatic and opponent-process theories correspond to a different stage of color processing, and they are no longer separate theories.

- b) the opposite half of perceivable colors
- c) one type of color blindness
- d) a different stage of visual processing

Correct. The trichromatic theory is concerned with what happens when light hits the cones in the retina, whereas the opponent-process theory concerns neural signals on their way to the brain.

ANS: d, p. 90, C, LO=3.3, (3)

% correct 40 a= 18 b= 21 c= 21 d= 40 r = .22

69. According to the opponent-process theory of color vision, the correct pairings of opposite colors are _____.

- a) red versus green and blue versus yellow

Correct. According to the opponent-process theory of color vision, the correct pairings of opposite colors are red versus green and blue versus yellow.

- b) black versus gray and white versus colored
- c) blue versus red and green versus yellow
- d) blue versus green and red versus yellow

Incorrect. According to the opponent-process theory of color vision, the correct pairings of opposite colors are red versus green and blue versus yellow.

ANS: a, p. 90, F, LO=3.3, (3)

% correct 80 a= 80 b= 5 c= 5 d= 10 r = .29

70. Which of the following pairs is an example of opponent cells?

- a) green/orange

Incorrect. Green/orange is not one of the opponent pairs suggested in the opponent process theory of color vision.

- b) red/pink
- c) yellow/blue

Correct. Yellow/blue is one of the opponent pairs, as are red/green and white/black.

- d) black/brown

ANS: c, p. 90, F, LO=3.3, (1)

71. According to the opponent-process theory, if you stare at a red star for 60 seconds and then look at a plain sheet of white paper, you will see an afterimage of the star in which hue?

- a) yellow
- b) blue
- c) green

Correct. According to the opponent process theory of color vision, green and red are opposing colors.

- d) red

Incorrect. The negative afterimage of red is green, not red itself.

ANS: c, p. 90, A, LO=3.3, (2)

72. Which neural structures show color opponent processing?

- a) rods, cones
- b) retinal ganglion cells, lateral geniculate cells

Correct. The retinal ganglion cells and lateral geniculate cells show color opponent processing.

- c) rods and bipolar cells

Incorrect. The retinal ganglion cells and lateral geniculate cells show color opponent processing.

- d) optic sensors and pigment neurons

ANS: b, p. 90, F, LO=3.3, (3)

73. Amy's school records describe her as a monochromat. What can we assume about Amy's perceptual abilities?

- a) She does not see color.

Correct. Monochromats do not see color.

- b) She sees only two colors.

Incorrect. Monochromats do not see any colors.

- c) She sees colors one at a time.

- d) She cannot remember words used to designate colors.

ANS: a, p. 90, A, LO=3.3, (2)

% correct 58 a= 58 b= 7 c= 34 d= 1 r = .38

74. A person with red-green color blindness will see the world in _____.

- a) blacks, whites, and grays

Incorrect. Blacks, whites, and grays are perceived through our brightness systems and would be unaffected by color blindness.

- b) muted reds and greens

- c) blues, yellows, and grays

Correct. Red-green color blindness means a person confuses reds and greens.

- d) yellows, greens, and grays

ANS: c, p. 90, A, LO=3.3, (3)

% correct 78 a= 8 b= 11 c= 78 d= 3 r = .25

75. Why do researchers believe color deficiencies often have genetic causes?

- a) Dietary patterns affect color deficiencies.
- b) Color perception changes somewhat as we get older.
- c) Color deficiencies are more common in some cultures.

Incorrect. Color deficiencies are about the same from one culture to another.

- d) More males than females suffer from color deficiencies.

Correct. More males than females suffer from color deficiencies due to the sex-linked inheritance of most forms of color blindness.

ANS: d, p. 91, C, LO=3.3, (3)

76. One of your mother's siblings is always known for putting together awful-looking colors when getting dressed. Who is this person more likely to be?

- a) your aunt because women have more problems with color vision
- b) your uncle because men have more problems with color vision

Correct. Men have more problems with color vision due to the sex-linked nature of most forms of color blindness.

- c) You cannot tell as men and women have an equal chance of having problems with color vision.

Incorrect. Men have more problems with color vision.

- d) Humans rarely have problems with color vision, so this would not happen.

ANS: b, p. 90-91, A, LO=3.3, (3)

77. All of the following are true about color blindness except:

- a) People are either unable to distinguish two or more hues from each other or unable to see hue at all.

b) Most color blindness is a result of sex-linked inheritance.

c) It seems to be more common in women than men.

Correct. Research suggests that far more men than women experience color-blindness.

d) Most people who are color blind cannot distinguish red from green.

Incorrect. This is a true statement, so it is not the correct answer to this question.

ANS: c, p. 90-91, F, LO=3.3, (2)

The Hearing Sense: Can You Hear Me Now?

Learning Objective 3.4 - What is sound, and how does it travel through the various parts of the ear?

78. Sound waves are simply _____.

a) the vibration of the molecules of the air surrounding us

Correct. Sound waves are simply the vibration of the molecules of the air surrounding us.

b) the impact of acoustrons in the air

Incorrect. There are no basic particles of sound analogous to photons. Sound does not have a dual nature of wave and particle as light does. Thus, there are no such particles as acoustrons. Sound waves are simply the vibration of the molecules of the air surrounding us.

c) a form of electronic radiation

d) photons

ANS: a, p. 92, F, LO=3.4, (1)

% correct 89 a= 89 b= 11 c= 0 d= 0 r = .19

79. Which of the following is a characteristic of both light waves and sound waves?

a) hue

Incorrect. Hue is a particular descriptor of light and color. Pitch is analogous in the sound domain. The terms are used separately.

b) decibels

c) amplitude

d) wavelength

Correct. Wavelength is the common characteristic of both light waves and sound waves.

ANS: d, p. 92, C, LO=3.4, (3)

% correct 77 a= 7 b= 0 c=16 d= 77 r = .20

80. A sound mixer is impressed by the new equipment that was just installed in his recording studio. He says that now he will be able to help singers and musicians produce better CDs because he can eliminate unneeded and undesired wavelengths. What term describes the characteristic of sound waves that the sound mixer is now able to alter?

a) volleying

Incorrect. Volleying is the term for what happens when frequencies are above 400 Hz and auditory neurons take turns firing.

b) amplitude

c) frequency

Correct. Frequency is the characteristic of sound waves associated with wavelengths.

d) saturation

ANS: c, p. 92, A, LO=3.4, (3)

81. Which of the following properties of sound is the most similar to the brightness of light?

a) pitch

b) volume

Correct. Volume is the most similar to brightness and is based on the intensity of the stimulus.

c) purity

Incorrect. Purity is most related to saturation in the light domain. In both cases, it refers to the total amount of different wavelengths, or frequencies, in the stimulus.

d) timbre

ANS: b, pp. 84 & 92, C, LO=3.4, (2)

82. Which of the following properties of sound would be the most similar to the color, or hue, of light?

a) pitch

Correct. Pitch relates to sound wavelengths, and color relates to light wavelengths.

b) loudness

Incorrect. Pitch is the property of sound most similar to the color, or hue, of light.

c) timbre

d) purity

ANS: a, pp. 84 & 92, C, LO=3.4, (2) SG

% correct 64 a= 64 b= 10 c= 11 d= 16 r = .20

83. An alien from outer space was just captured. Scientists take turns examining the creature. At a press conference, one of the scientists reports that the alien can hear frequencies between 10,000 and 30,000 Hz. How does the alien's ability to detect sound compare to a human being's ability?

a) The alien and humans detect the same frequencies.

Incorrect. Although the alien can detect higher frequencies, its hearing is not as acute at lower frequencies. Humans can hear a range between 20 to 20,000 Hz.

b) Humans can detect higher frequencies than the alien.

c) The alien can detect higher frequencies, but its hearing is not as acute at lower frequencies.

Correct. Although the alien can hear frequencies 10,000 Hz above what humans can hear, it cannot hear frequencies below 10,000 Hz, while humans can.

d) Humans can detect higher frequencies, but the alien detects lower frequencies better than humans.

ANS: c, p. 93, A, LO=3.4, (3)

% correct 94 a= 3 b= 4 c= 94 d= 0 r = .42

% correct 93 a=4 b= 4 c= 93 d= 0 r = .19

84. What is the basic function of the outer ear?

a) to protect the hair cells

Incorrect. The hair cells are in the inner ear and, thus, do not need protection from the outer ear. The basic function of the outer ear is to concentrate and funnel sound waves to the eardrum.

b) to concentrate and funnel sound waves to the eardrum

Correct. The basic function of the outer ear is to concentrate and funnel sound waves to the eardrum. Enough energy must be collected to eventually move the liquid in the cochlea and stimulate the hair cells.

c) to amplify low-intensity sounds to detectable levels

d) to filter out high-intensity sound waves that can be harmful

ANS: b, p. 91, C, LO=3.4, (2)

% correct 83 a= 3 b= 83 c= 7 d= 5 r = .31

85. The outermost part of the ear is called the _____.

a) pinna

Correct. The pinna is the part of the ear that extends outside of the skull.

b) oval window

c) tympanic membrane

d) cochlea

Incorrect. The cochlea is the snail-like organ in the inner ear. The outer ear is called the pinna.

ANS: a, p. 93, F, LO=3.4, (1)

% correct 59 a= 59 b= 14 c= 10 d= 18 r = .53

86. Which of the following describes what happens if you trace an auditory stimulus from the time it first reaches the ear until it arrives at the brain?

a) The outer ear (pinna) gathers sound waves and funnels them down the auditory canal striking the eardrum.

Correct. The outer ear serves as a sort of funnel to concentrate sound energy.

b) The basilar membrane causes the hammer, anvil, and stirrup to vibrate striking the oval window.

Incorrect. The basilar membrane is inside the inner ear, and the bones cause it to vibrate, not vice versa. The outer

ear serves as a sort of funnel to concentrate sound energy.

- c) The auditory cones respond to the various tonal frequencies, which lead the auditory nerve to send a message to the brain.
- d) The auditory nerve joins with the nasal nerve to produce an input to the olfactory lobe.

ANS: a, p. 93, C, LO=3.4, (3)

87. The eardrum is also called the _____.

- a) bass fiddler membrane
- b) oval window

Incorrect. The oval window is later in the system and is attached to the cochlea. The eardrum is also called the tympanic membrane.

- c) tympanic membrane

Correct. The eardrum is also called the tympanic membrane. It transmits vibrations through the bones of the middle ear to the oval window.

- d) cochlea

ANS: c, p. 93, C, LO=3.4, (2)

88. The bone that is attached to the eardrum is called the _____; the bone that is connected to the oval window is called the _____.

- a) anvil (incus); stirrup (stapes)
- b) hammer (malleus); anvil (incus)

Incorrect. The bone that is attached to the eardrum is called the hammer; the bone that is connected to the oval window is called the stirrup.

- c) stirrup (stapes); hammer (malleus)
- d) hammer (malleus); stirrup (stapes)

Correct. The bone that is attached to the eardrum is called the hammer; the bone that is connected to the oval window is called the stirrup.

ANS: d, pp. 93-94, C, LO=3.4, (2)

89. What are the hammer, anvil, and stirrup?

- a) tiny bones located in the middle ear

Correct. The hammer, anvil, and stirrup are tiny bones in the middle ear.

- b) types of cones on the retina
- c) types of sound that most people can detect

Incorrect. The hammer, anvil, and stirrup are tiny bones in the middle ear.

- d) words often used by audiologists in testing for hearing difficulties

ANS: a, p. 94, F, LO=3.4, (2)

% correct 88 a= 88 b= 6 c= 4 d= 2 r = .29

% correct 100 a= 100 b= 0 c= 0 d= 0 r = .00

90. Fluid located in the cochlea is set in motion and causes vibration in the _____.

- a) ossicles

Incorrect. Fluid from the cochlea causes vibrations in the basilar membrane.

- b) bipolar cells
- c) basilar membrane

Correct. Fluid from the cochlea causes vibrations in the basilar membrane.

- d) semicircular canals

ANS: c, p. 92, F, LO=3.4, (3)

% correct 58 a= 14 b= 4 c= 58 d= 25 r = .36

91. Which of the following are the auditory receptors where sound waves finally become neural impulses?

- a) hair cells

Correct. The hair cells are the receptors where sound waves finally become neural impulses.

- b) organs of Corti
- c) basilar membranes

- d) tectorial membranes

Incorrect. The tectorial membranes are support structures. The hair cells are the receptors.

ANS: a, p. 94, F, LO=3.4, (3)

% correct 30 a= 30 b= 28 c= 37 d= 5 r = .20

92. The place theory of pitch was suggested by _____.

- a) Helmholtz

Correct. Helmholtz suggested the theory of pitch.

- b) Hering
- c) Wald
- d) Rutherford

Incorrect. Rutherford suggested the frequency theory. Helmholtz suggested the theory of pitch.

ANS: a, p. 94, F, LO=3.4, (3)

% correct 74 a= 74 b= 2 c= 15 d= 9 r = .33

93. The place theory of pitch suggests that pitch is determined by the _____.

- a) location where the specific hair cells are stimulated

Correct. The place theory of pitch suggests that pitch is determined by where the specific hair cells are stimulated.

- b) number of hair cells that are stimulated

Incorrect. The place theory of pitch suggests that pitch is determined by where the specific hair cells are stimulated.

- c) size of the hair cells that are stimulated
- d) degree of bend in the stimulated hair cells

ANS: a, p. 94, F, LO=3.4, (3)

94. If a person hears a tone of 3000 Hz, three groups of neurons take turns sending the message to the brain—the first group for the first 1000 Hz, the second group for the next 1000 Hz, and a third for the next 1000 Hz. This principle is known as the _____.

- a) place theory

Incorrect. The place theory proposes that the pitch a person hears depends on where the stimulated hair cells are located.

- b) volley principle

Correct. The volley principle proposes that three groups of neurons take turns sending the message to the brain.

- c) frequency theory
- d) rotational theory

ANS: b, p. 95, F, LO=3.4, (2)

95. Which theory proposes that above 400 Hz but below 4,000 Hz, auditory neurons do not fire all at once, but in rotation?

- a) place theory

Incorrect. The place theory proposes that the pitch a person hears depends on where the stimulated hair cells are located.

- b) volley principle

Correct. The volley principle proposes that, above 400 Hz but below 4,000 Hz, auditory neurons do not fire all at once but in rotation.

- c) frequency theory
- d) rotational theory

ANS: c, p. 95, F, LO=3.4, (2) SG

96. Conduction hearing impairment refers to hearing problems that originate in the _____.

- a) outer ear

Incorrect. Conduction deafness refers to hearing problems that originate in the eardrum and middle ear.

- b) inner ear
- c) eardrum and middle ear

Correct. Conduction deafness refers to hearing problems that originate in the eardrum and middle ear.

- d) auditory pathways and brain

ANS: c, p. 95, F, LO=3.4, (2)

97. Which type of hearing problem can be reduced with ordinary hearing aids?

- a) central hearing impairment
- b) conduction hearing impairment

Correct. Conduction hearing impairment can be reduced with ordinary hearing aids.

- c) sensory-neural hearing impairment
- d) auditory pathway hearing impairment

Incorrect. There is no such term as auditory pathway hearing impairment. Conduction hearing impairment can be reduced with ordinary hearing aids.

ANS: b, p. 95, F, LO=3.4, (2)

% correct 19 a= 15 b= 19 c= 14 d= 50 r = .24

98. In nerve hearing impairment, the problem lies in_____.

- a) either the inner ear or the auditory pathways and cortical areas of the brain

Correct. In nerve hearing impairment, the problem lies either in the inner ear or in the auditory pathways and cortical areas of the brain.

- b) the outer or middle ear

Incorrect. In nerve hearing impairment, the problem lies either in the inner ear or in the auditory pathways and cortical areas of the brain.

- c) the pontine nucleus
- d) the occipital lobe

ANS: a, p. 95, F, LO=3.4, (3)

99. Larry's doctor told him that he is experiencing _____ due to hair cells that were destroyed as a result of loud sounds.

- a) nerve hearing impairment

Correct. Nerve hearing impairment occurs when the hair cells of the ear are destroyed by loud sounds.

- b) tinnitus
- c) conduction hearing impairment

Incorrect. Conduction hearing impairment occurs when there is a physical impairment of the outer or middle ear.

- d) a speech segmentation problem

ANS: a, p. 95, A, LO=3.4, (2)

100. Nerve hearing impairment can be best treated with _____.

- a) normal sound-amplifying hearing aids

Incorrect. Cochlear implants would best help nerve hearing impairment.

- b) drug treatments that regrow hair cells
- c) classical conditioning to very low sounds
- d) cochlear implants

Correct. Cochlear implants would best help nerve hearing impairment because they allow sound to bypass the outer and middle ear and send signals from a microphone worn behind the ear to electrodes implanted directly into the brain.

ANS: d, p. 95, F, LO=3.4, (2)

101. Cochlear implants bypass the _____.

- a) outer ear
- b) outer and middle ear

Correct. Cochlear implants bypass the outer and middle ear as they hook into the auditory nerve after the cochlea in the inner ear.

- c) outer, middle, and inner ear

Incorrect. They work in the inner ear.

- d) none of the above

ANS: b, p. 95, F, LO=3.4, (2) SG

% correct 44 a= 12 b= 44 c= 9 d= 35 r = .21

Chemical Senses: It Tastes Good, but It Smells Even Better

Learning Objective 3.5 - How do the senses of taste and smell work, and how are they alike?

102. Flavor arises from:

a) taste only.

Incorrect. The very strong relationship between our sense of taste and our sense of smell give rise to flavor experiences.

b) taste and sight.

c) taste and texture.

d) taste and smell.

Correct. Taste and smell are both components of our experience of flavor.

ANS: d, p. 96, F, LO=3.5, (2)

103. Laverne looks at the tongue of her friend and sees all kinds of bumps on her tongue. "Girl," she says, "you sure have a lot of _____."

a) olfactory receptors

b) taste buds

Incorrect. The "bumps" on the tongue that are visible to the eye are the papillae.

c) papillae

Correct. The "bumps" on the tongue that are visible to the eye are the papillae.

d) taste receptors

ANS: c, p. 96, F, LO=3.5, (1)

% correct 17 a= 4 b= 67 c= 17 d= 13 r = .32

104. A person can have between _____ taste buds in his or her mouth.

a) 100 to 1,000

Incorrect. This estimate is too low. A person might have between 500 to 10,000 taste buds in his or her mouth.

b) 20,000 to 50,000

c) 6,000,000 to 120,000,000

d) 500 to 10,000

Correct. The average person has between 500 to 10,000 taste buds.

ANS: d, p. 96, F, LO=3.5, (3)

105. Maricella always uses less seasoning on her food than do the other members of her family. Her sister has just taken an introductory psychology course and says to Maricella, _____

a) "I know what you are – you are a taster pro."

b) "I know what you are – you are a taster queen."

c) "I know what you are – you are a supertaster."

Correct. Someone who is more sensitive to taste than others is called a supertaster.

d) "I know what you are – you are a Gustavus Adolphus."

Incorrect. Someone who is more sensitive to taste than others is called a supertaster.

ANS: c, p. 96, A, LO=3.5, (2)

106. Approximately how many taste receptors are located on each taste bud?

a) 2

Incorrect. There are about 20 taste receptors located on each taste bud.

b) 20

Correct. There are about 20 taste receptors located on each taste bud.

c) 50

d) 500

ANS: b, p. 96, F, LO=3.5, (3)

107. Where are the taste receptors located?

- a) on the papillae

Incorrect. The taste buds are found on the papillae. The taste receptors are located on the taste buds.

- b) on the taste buds

Correct. The taste receptors are located on the taste buds.

- c) on the microvilli

- d) in the gustatory bulb

ANS: b, p. 96, F, LO=3.5 (2)

% correct 77 a= 17 b= 77 c= 3 d= 8 r = .21

108. What is the approximate life expectancy of individual taste receptor cells?

- a) 1–2 days

- b) 10–14 days

Correct. The approximate life expectancy of individual taste receptor cells is 10–14 days.

- c) 1–2 months

- d) 1 year

Incorrect. The approximate life expectancy of individual taste receptor cells is 10–14 days.

ANS: b, p. 96, F, LO=3.5, (3)

109. What are the five primary tastes?

- a) hot, sour, spicy, sweet, origami

- b) salty, sour, spicy, sweet, tart

Incorrect. Tart is not one of the five primary tastes. The five are bitter, salty, sour, sweet, and umami.

- c) bitter, salty, sour, sweet, umami

Correct. The five primary tastes are bitter, salty, sour, sweet, and umami.

- d) peppery, salty, sour, sweet, acidic

ANS: c, p. 97, F, LO=3.5, (3)

% correct 69 a= 0 b= 30 c= 69 d= 1 r = .32

110. All of the following are considered “traditional” tastes except:

- a) spicy

Correct. Spicy is not one of the basic taste sensations, traditional or otherwise.

- b) salty.

- c) sour.

Incorrect. Sour is considered one of the original, traditional basic tastes.

- d) sweet.

ANS: a, pp. 97, F, LO=3.5, (1)

111. Which is the newest of the five basic tastes to be discovered?

- e) bitter

- f) sour

Incorrect. Umami is the newest taste to be discovered.

- g) sweet

- h) umami, or brothy

Correct. Umami, or brothy, is the newest taste to be discovered.

ANS: d, p. 97, F, LO=3.5, (3)

112. The sense of smell is also known as _____.

- a) olfaction

Correct. The sense of smell is also known as olfaction.

- b) the salivary sense

- c) chemical infarction

- d) gustation

Incorrect. Gustation is the word for the sense of taste.

ANS: a, p. 98, F, LO=3.5, (1)

113. The human olfactory system contains about _____ olfactory receptors.

- a) 100,000
- b) 1,000,000
- c) 10,000,000

Correct. The human olfactory system contains about 10,000,000 receptors.

- d) 100,000,000

Incorrect. The human olfactory system contains about 10,000,000 receptors.

ANS: c, p. 98, F, LO=3.5, (3)

114. Each olfactory receptor cell has a half dozen to a dozen little hairs that project out. These are called _____.

- a) olfactory cones
- b) olfactory rods
- c) olfactory buds

Incorrect. The hairs that project out of olfactory cells are called cilia.

- d) cilia

Correct. The hairs that project out of olfactory cells are called cilia.

ANS: d, p. 98, F, LO=3.5, (1)

115. The cilia in the nasal cavity act in a manner similar to taste buds in that they _____.

- a) respond to various wavelengths of smell
- b) contain pressure-sensitive elements that detect certain molecules
- c) contain receptor sites that are stimulated by different molecules

Correct. The cilia in the nasal cavity act in a manner similar to taste buds as they contain receptor sites that are stimulated by different molecules.

- d) only respond to five basic smells

Incorrect. The cilia in the nasal cavity act in a manner similar to taste buds as they contain receptor sites that are stimulated by different molecules.

ANS: c, p. 98, C, LO=3.5, (3)

% correct 45 a= 4 b= 3 c= 45 d= 48 r = .30

116. An olfactory stimulus travels from receptor to _____.

- a) olfactory bulb

Correct. An olfactory stimulus travels from receptor to the olfactory bulb.

- b) thalamus
- c) amygdala
- d) pons

Incorrect. An olfactory stimulus travels from the receptor to the olfactory bulb.

ANS: a, p. 99, F, LO=3.5, (3) SG

Somesthetic Senses: What the Body Knows

Learning Objective 3.6 - What allows people to experience the sense of touch, pain, motion, and balance?

117. There is (are) _____ somesthetic sense system(s).

- a) one
- b) two
- c) three

Correct. There are three somesthetic sense systems.

- d) four

Incorrect. There are only three somesthetic sense systems.

ANS: c, p. 99, F, LO=3.6, (3)

118. Somesthetic senses involve all of the following except _____.

a) touch

Incorrect. Touch is, in fact, one of the somesthetic senses

b) pain

c) temperature sensitivity

d) taste

Correct. Taste is a chemical sense, not a somesthetic sense

ANS: d, p. 99, F, LO=3.6, (1)

119. Which is the best description of the kinesthetic sense?

a) It has to do with touch, pressure, temperature, and pain.

b) *It has to do with the location of body parts in relation to the ground and to each other.*

Correct. The kinesthetic sense has to do with the location of body parts in relation to the ground and to each other.

c) It has to do with movement and body position.

Incorrect. The kinesthetic sense has to do with the location of body parts in relation to the ground and to each other.

d) It has to do with your location as compared to the position of the sun.

ANS: b, p. 99, F, LO=3.6, (2)

% correct 71 a= 7 b= 71 c= 9 d= 13 r = .29

120. The kinesthetic senses are concerned with _____.

a) touch, pressure, temperature, and pain

Incorrect. Skin senses have to do with touch, pressure, temperature, and pain. The kinesthetic senses are concerned with the location of body parts in relation to the ground and to each other.

b) the location of body parts in relation to the ground and to each other

Correct. The kinesthetic senses are concerned with the location of body parts in relation to the ground and to each other.

c) movement and body position

d) your location as compared to the position of the sun

ANS: b, p. 99, F, LO=3.6, (2)

121. Which is the best description of the skin senses?

a) They have to do with touch, pressure, temperature, and pain.

Correct. Skin senses have to do with touch, pressure, temperature, and pain.

b) They have to do with the location of body parts in relation to the ground and to each other.

Incorrect. The kinesthetic senses are concerned with the location of body parts in relation to the ground and to each other. Skin senses have to do with touch, pressure, temperature, and pain.

c) They have to do with movement and body position.

d) They have to do with your location as compared to the position of the sun.

ANS: a, p. 99, F, LO=3.6, (2)

122. The skin senses are concerned with _____.

a) touch, pressure, temperature, and pain

Correct. The skin senses are concerned with touch, pressure, temperature, and pain.

b) the location of body parts in relation to the ground and to each other

c) movement and body position

d) your location as compared to the position of the sun

Incorrect. There is no sense that compares your location to the position of the sun. The skin senses are concerned with touch, pressure, temperature, and pain.

ANS: a, p. 99, F, LO=3.6, (2)

123. The vestibular senses are concerned with _____.

a) touch, pressure, temperature, and pain

b) the location of body parts in relation to the ground and to each other

Incorrect. The kinesthetic senses are concerned with the location of body parts in relation to the ground and to each other. The vestibular senses are concerned with movement and body position.

c) movement and body position

Correct. The vestibular senses are concerned with movement and body position.

- d) your location as compared to the position of the sun

ANS: c, p. 99, F, LO=3.6, (2)

124. Which is the best description of the vestibular senses?

- a) They have to do with touch, pressure, temperature, and pain.
- b) They have to do with the location of body parts in relation to the ground and to each other.

Incorrect. The kinesthetic senses are concerned with the location of body parts in relation to the ground and to each other. Vestibular senses have to do with movement and body position.

- c) They have to do with movement and body position.

Correct. Vestibular senses have to do with movement and body position.

- d) They have to do with your location as compared to the position of the sun.

ANS: c, p. 99, F LO=3.6, (2) SG

125. The average person's skin is about _____.

- a) 10 square feet in size
- b) 20 square feet in size

Correct. The average person's skin is about 20 square feet in size.

- c) 30 square feet in size
- d) 40 square feet in size

Incorrect. The average person's skin is about 20 square feet in size.

ANS: b, p. 99, F, LO=3.6, (2)

126. Hair follicle nerve endings respond to _____.

- a) temperature alone
- b) pain and touch

Correct. Hair follicle nerve endings respond to pain and touch.

- c) only pain

Incorrect. Hair follicle nerve endings respond to both pain and touch.

- d) temperature and pain

ANS: b, p. 99, F, LO=3.6, (1)

127. Which skin receptors respond only to pressure?

- a) Pacinian corpuscles

Correct. Pacinian corpuscles respond only to pressure.

- b) hair follicle nerve endings
- c) free nerve endings

Incorrect. Free nerve endings respond to pain and temperature as well as pressure. Pacinian corpuscles respond only to pressure.

- d) visceral corpuscles

ANS: a, p. 99, F, LO=3.6, (3)

128. You hit yourself with a hammer and later suffer a deep ache. This is an example of _____.

- a) somatic pain

Correct. Somatic pain can be sharp and fast, but it can also be an ongoing general ache that keeps people from further injury by reminding them that the body has already been damaged.

- b) visceral pain
- c) pressure pain

Incorrect. There is no such term as pressure pain.

- d) free-standing pain

ANS: a, p. 99, A, LO=3.6, (2)

129. Pain sensations in the skin, muscles, tendons, and joints that are carried on large nerve fibers are called _____.

- a) visceral pain

Incorrect. Visceral pain is the pain one feels in the organs. Pain sensations in the skin, muscles, tendons, and joints that are carried on large nerve fibers are called somatic pain.

- b) somatic pain

Correct. Pain sensations in the skin, muscles, tendons, and joints that are carried on large nerve fibers are called somatic pain.

- c) referred pain
- d) indigenous pain

ANS: b, p. 100, F, LO=3.6, (2)

130. The idea that pain signals must pass through a type of “doorway” in the spinal cord is referred to as the _____.

- a) opponent-process theory of pain
- b) revolving door theory of pain

Incorrect. There is no such thing as the revolving door theory of pain. The gate-control theory is based on the concept of a doorway in the spinal cord.

- c) substance P theory of pain
- d) gate-control theory of pain

Correct. The gate-control theory is based on the concept of a doorway in the spinal cord.

ANS: d, p. 100, C, LO=3.6, (3)

131. The gate-control theory of pain suggests that _____.

- a) the pain signals must pass through a kind of “gate” located in the spinal cord

Correct. The gate-control theory is based on the idea that the pain signals must pass through a kind of “gate” located in the spinal cord.

- b) the skin receptors act as a gate for the pain sensation
- c) the cortex blocks pain unless released by substance P
- d) the gate is a physical structure that blocks pain signals

Incorrect. The gate-control theory is based on the idea that the pain signals must pass through a kind of “gate” in the spinal cord that is not an actual physical structure.

ANS: a, p. 100, F, LO=3.6, (3)

132. Psychological aspects of pain perception can influence the release of the neurotransmitters called _____, the body’s natural version of morphine.

- a) endorphins

Correct. Psychological aspects of pain perception can influence the release of the neurotransmitters called endorphins.

- b) substance P

Incorrect. Substance P is a chemical released into the spinal cord as a result of stimulation of the pain receptor cells. Psychological aspects of pain perception can influence the release of the neurotransmitters called endorphins.

- c) serotonin
- d) acetylcholine

ANS: a, p. 101, F, LO=3.6, (2)

133. Endorphins are the neurotransmitters that _____.

- a) control your muscles
- b) generate pain sensations

Incorrect. Endorphins act as a natural version of morphine.

- c) act as a natural version of morphine

Correct. Endorphins act as a natural version of morphine.

- d) excite the ventral horn of the spinal cord

ANS: c, p. 101, F, LO=3.6, (2)

134. Proprioceptors signal _____.

- a) somatic pain

Incorrect. Somatic pain is carried on nerve fibers. Proprioceptors signal visceral pain (from the organs) as well as the location of our body parts in space.

- b) skin sensations
- c) olfactory sensations
- d) the location of our body parts in space

Correct. Proprioceptors signal to the brain the location of our body parts in space.

ANS: d, p. 101, F, LO=3.6, (1)

135. Closing your eyes and then touching your nose with your forefinger most accurately illustrates which of the following?

- a) vestibular sense
- b) kinesthetic sense

Correct. The knowledge of the position of your limbs is controlled by the kinesthetic system.

- c) somesthetic sense

Incorrect. The kinesthetic system is one of the somesthetic senses, so it would be the better answer.

- d) anomalous cognition

ANS: b, p. 101, A, LO=3.6, (2)

136. Which of the following is the primary structure that allows one to maintain his or her balance?

- a) cochlea

Incorrect. The semicircular canals are the primary structures responsible for balance.

- b) middle ear
- c) semicircular canals

Correct. The semicircular canals are the primary structures responsible for balance.

- d) circular canals

ANS: c, p. 101, F, LO=3.6, (1)

137. There are three semicircular canals is so that we _____.

- a) have one canal to sense motion in each of the three planes

Correct. The reason is that we have one canal to sense motion in each of the three planes.

- b) can see the world in three dimensions
- c) can detect sound locations in the three-dimensional world
- d) have an extra in case one is broken

Incorrect. The reason is that we have one canal to sense motion in each of the three planes.

ANS: a, pp. 101-102, C, LO=3.6, (3)

% correct 37 a= 37 b= 20 c= 42 d= 1 r = .20

138. Dizziness, nausea, and disorientation may result if information from the eyes conflicts a little too much with that from the vestibular organs, according to the _____ of motion sickness.

- a) sensory conflict theory

Correct. The sensory conflict theory says there may be conflict between the eyes and vestibular system.

- b) motor conflict theory
- c) vestibular conflict theory

Incorrect. There is no such theory as the vestibular conflict theory. The sensory conflict theory says there may be conflict between the eyes and vestibular system.

- d) semicircular canal conflict theory

ANS: a, p. 102 , F, LO=3.6, (2)

139. Which is the BEST explanation of why we tend to get nauseated when riding in a moving vehicle?

- a) the conflict between vision and the vestibular organs

Incorrect. The evolutionary theory is seen as the best one. The conflict causes the dizziness but doesn't explain why we feel nauseated.

- b) fluid circulating in the semicircular canals
- c) vomiting to expel poison

Correct. The evolutionary theory is seen as the best one. It suggests that since throughout human evolutionary history, because poisons have tended to make us dizzy, we try to expel the poison through vomiting.

- d) none of these

ANS: c, p. 102, C, LO=3.6, (3)

140. Natasha is learning ballet and is just starting on high-speed spins. Her teacher tells her that to avoid motion sickness, she should _____.

- a) avoid poisons that mimic dizziness
- b) try plugging her ears when she spins so sounds don't distract her

Incorrect. Audition is not related to the problem. It is a visual problem.

- c) try to focus on some distant point

Correct. Because the distant point won't seem to move as much as the objects closer to her as she spins, there is less conflict between her eyes and vestibular organs.

- d) hold her arms over her head

ANS: c, p. 102, A, LO=3.6, (2)

The ABCs of Perception

Learning Objective 3.7 - What are perception, perceptual constancies, and the Gestalt principles of perception?

141. _____ is the mental process of making sense of sensory information.

- a) Abstraction
- b) Sensation

Incorrect. Sensation is the activation of the receptors. Perception is the mental process of making sense of sensory information.

- c) Perception

Correct. Perception is the mental process of making sense of sensory information.

- d) Consciousness

ANS: c, pp. 102-103, C, LO=3.7, (2)

142. Perception is the _____.

- a) process by which people take all the sensations they experience at any given moment and interpret them in some meaningful fashion

Correct. Perception is the process by which people take all the sensations they experience at any given moment and interpret them in some meaningful fashion.

- b) action of physical stimuli on receptors leading to sensations
- c) interpretation of memory based on selective attention
- d) act of selective attention from sensory storage

Incorrect. Perception is the process by which people take all the sensations they experience at any given moment and interpret them in some meaningful fashion.

ANS: a, pp. 102-103, C, LO=3.7, (3)

% correct 41 a= 41 b= 30 c= 3 d= 26 r = .46

143. The tendency to interpret an object as always being the same physical dimensions, regardless of its distance from the viewer, is known as _____.

- a) size constancy

Correct. The tendency to interpret an object as always being the same physical dimensions, regardless of its distance from the viewer, is known as size constancy.

- b) shape constancy

Incorrect. Shape constancy has to do with the shapes of objects, not with their physical dimensions.

- c) brightness constancy
- d) color constancy

ANS: a, p. 103, F, LO=3.7, (2) SG

144. A student takes a drug that distorts perception. He holds up his hand right in front of his face. Horrified he yells, "I have a giant hand!" The drug most likely interfered with _____.

- a) size constancy

Correct. The tendency to interpret an object as always being the same physical dimensions, regardless of its distance from the viewer, is known as size constancy.

- b) shape constancy

Incorrect. Shape constancy has to do with the shapes of objects, not with their physical dimensions.

- c) brightness constancy

- d) color constancy

ANS: a, p. 103, A, LO=3.7, (2)

145. Suppose your town is located in a valley. Obviously, you'll realize that the size of your town does not change regardless of whether you look at it up-close or from a hilltop. This is primarily due to _____.

- a) size constancy

Correct. Size constancy is the perception that the actual size of an object remains the same even when it is viewed at different distances.

- b) color constancy

Incorrect. Color constancy is the perception that the color of an object remains the same even when it is seen in different lighting conditions.

- c) retinal disparity

- d) stereopsis

ANS: a, p. 103, A, LO=3.7, (1)

146. A piece of paper looks white in both the noonday sun and under moonlight, even though less light is being reflected off the paper under moonlight. This form of perceptual constancy is called _____.

- a) size constancy

- b) shape constancy

- c) brightness constancy

Correct. The fact that a piece of paper looks white in both the noonday sun and under moonlight is a perceptual phenomenon called brightness constancy.

- d) color constancy

Incorrect. The fact that a piece of paper looks white in both the noonday sun and under moonlight is a perceptual phenomenon called brightness constancy.

ANS: c, p. 103, A, LO=3.7, (3)

147. Figure-ground relationships concern _____.

- a) the tendency to perceive objects, or figures, on a background

Correct. Figure-ground relationships have to do with the tendency to perceive objects, or figures, as existing on a background.

- b) the tendency to complete figures that are incomplete

- c) the tendency to perceive objects that are close to each other as part of the same grouping

- d) the tendency to perceive things with a continuous pattern rather than with a complex, broken-up pattern

Incorrect. Figure-ground relationships refer to the tendency to perceive objects, or figures, as existing on a background.

ANS: a, p. 101, F, LO=3.7, (2)

% correct 61 a= 61 b= 7 c= 15 d= 17 r = .35

148. The tendency to perceive objects, or figures, as existing on some background is known as _____.

- a) figure-ground relationships

Correct. Figure-ground relationships refer to the tendency to perceive objects, or figures, as existing on a background.

- b) closure

- c) similarity

Incorrect. Figure-ground relationships refer to the tendency to perceive objects, or figures, as existing on a background.

d) proximity

ANS: a, p. 103, F, LO=3.7, (2)

149. Suppose you look at a given figure and decide that, depending on how you look at it, it can be perceived as either an old woman or a young lady. Such a figure would be said to be _____.

- a) mixed
- b) confused

Incorrect. The visual stimulus may be confusing, but the correct terminology for such a stimulus is ambiguous.

c) reversible

Correct. When the figure is reversible, it is difficult to distinguish from the ground.

d) inconsistent

ANS: c, p. 103, A, LO=3.7, (1)

150. Similarity is the tendency to perceive _____.

- a) objects, or figures, on a background
- b) things that look similar as being part of the same group

Correct. Similarity refers to the tendency to perceive things that look similar as being part of the same group.

c) objects that are close to each other as part of the same grouping

d) things with a continuous pattern rather than with a complex, broken-up pattern

Incorrect. Similarity refers to the tendency to perceive things that look similar as being part of the same group.

ANS: b, p. 104, F, LO=3.7, (2)

151. The tendency to perceive things that look similar as being part of the same group is known as _____.

- a) figure-ground relationship
- b) closure
- c) similarity

Correct. Similarity is the tendency to perceive things that look similar as being part of the same group.

d) proximity

Incorrect. Similarity is the tendency to perceive things that look similar as being part of the same group.

ANS: c, p. 104, F, LO=3.7, (2)

152. An example of a group or organization that tries to maximize the similarity between figure and ground would be a(n) _____.

- a) business
- b) legal office
- c) hospital

Incorrect. There would be no reason to reduce the difference between the figure and ground in a hospital setting.

d) army

Correct. The army would use camouflage to try to hide the figure of a soldier from the background of the surrounding brush.

ANS: d, p. 104, A, LO=3.7, (3)

153. Proximity is the tendency _____.

a) to perceive objects, or figures, on some background

Incorrect. Proximity is the tendency to perceive objects that are close to each other as part of the same grouping.

b) to complete figures that are incomplete

c) to perceive objects that are close to each other as part of the same grouping

Correct. Proximity is the tendency to perceive objects that are close to each other as part of the same grouping.

d) to perceive things with a continuous pattern rather than with a complex, broken-up pattern

ANS: c, p. 104, F, LO=3.7, (2)

154. The tendency to perceive objects that are close to each other as part of the same grouping is known as _____.

- a) figure-ground relationship
- b) closure

Incorrect. Proximity is the tendency to perceive objects that are close to each other as part of the same grouping.

- c) similarity
- d) proximity

Correct. Proximity is the tendency to perceive objects that are close to each other as part of the same grouping.

ANS: d, p. 104, F, LO=3.7, (2)

155. You will more than likely see “XXX XXX XXX” as three groups of “X” rather than one group of nine “X”s. This example illustrates which of the following Gestalt laws?

- a) proximity

Correct. The Gestalt law of proximity suggests that objects appear close together would be perceived as having a relationship.

- b) similarity
- c) closure

Incorrect. There is no reason to think that your mind would automatically close the gaps between the three sets of Xs in this example.

- d) continuity

ANS: a, p. 104, A, LO=3.7, (2)

156. Closure is the tendency _____.

- a) to perceive objects, or figures, as existing on a background
- b) to complete figures that are incomplete

Correct. Closure is the tendency to complete figures that are incomplete.

- c) to perceive objects that are close to each other as part of the same grouping
- d) to perceive things with a continuous pattern rather than with a complex, broken-up pattern

Incorrect. Closure is the tendency to complete figures that are incomplete.

ANS: b, p. 104, F, LO=3.7, (2) SG

157. The tendency to complete figures that are incomplete is known as _____.

- a) figure–ground relationship
- b) closure

Correct. Closure is the tendency to complete figures that are incomplete.

- c) similarity
- d) continuity

Incorrect. Closure is the tendency to complete figures that are incomplete.

ANS: b, p. 104, F, LO=3.7, (2)

158. Continuity is the tendency _____.

- a) to perceive objects, or figures, on some background
- b) to complete figures that are incomplete
- c) to perceive objects that are close to each other as part of the same grouping

Incorrect. Continuity refers to the tendency to perceive things with a continuous pattern rather than with a complex, broken-up pattern.

- d) to perceive things with a continuous pattern rather than with a complex, broken-up pattern

Correct. Continuity refers to the tendency to perceive things with a continuous pattern rather than with a complex, broken-up pattern.

ANS: d, p. 104, F, LO=3.7, (2)

% correct 83 a= 1 b= 9 c= 6 d= 83 r = .25

159. The tendency to perceive things with an unbroken pattern rather than with a complex, broken-up pattern is known as _____.

- a) proximity

Incorrect. Continuity refers to the tendency to perceive things with a continuous pattern rather than with a complex, broken-up pattern.

- b) continuity

Correct. Continuity refers to the tendency to perceive things with a continuous pattern rather than with a complex, broken-up pattern.

- c) contiguity
- d) common region

ANS: b, p. 104, F, LO=3.7, (2)

160. Contiguity is the tendency to perceive _____.

- a) objects that are close to each other as part of the same grouping
- b) things with a continuous pattern rather than with a complex, broken-up pattern

Incorrect. Contiguity is the tendency to perceive two things that happen close together in time as being related.

- c) two things that happen close together in time as being related

Correct. Contiguity is the tendency to perceive two things that happen close together in time as being related.

- d) objects that are in a common area or region as being in a group

ANS: c, p. 104, F, LO=3.7, (2)

161. The tendency to perceive two things that happen close together in time as being related is known as _____.

- a) similarity

Incorrect. Contiguity is the tendency to perceive two things that happen close together in time as being related.

- b) proximity
- c) continuity
- d) contiguity

Correct. Contiguity is the tendency to perceive two things that happen close together in time as being related.

ANS: d, p. 104, F, LO=3.7, (2)

162. Common region is the tendency to perceive _____.

- a) objects that are close to each other as part of the same grouping

Incorrect. Common region the tendency is to perceive objects that are in a common area or region as being in a group.

- b) things with a continuous pattern rather than with a complex, broken-up pattern
- c) two things that happen close together in time as being related
- d) objects that are in a common area or region as being in a group

Correct. Common region is the tendency to perceive objects that are in a common area or region as being in a group.

ANS: d, p. 105, C, LO=3.7, (1)

163. The tendency to perceive objects that are in a common area or region as being in a group is known as _____.

- a) similarity
- b) proximity
- c) continuity

Incorrect. Common region is the tendency to perceive objects that are in a common area or region as being in a group.

- d) common region

Correct. Common region is the tendency to perceive objects that are in a common area or region as being in a group.

ANS: d, p. 103, F, LO=3.7, (1)

Learning Objective 3.8 - What is depth perception, and what kinds of cues are important for it to occur?

164. The ability to see the world in three dimensions is called _____.

- a) depth perception

Correct. The ability to see the world in three dimensions is called depth perception.

- b) similarity
- c) top-down processing

Incorrect. The ability to see the world in three dimensions is called depth perception.

- d) closure

ANS: a, p. 105, F, LO=3.8, (1)

165. In people who have been blind since birth and who then have had their sight restored, depth perception _____.

- a) is absent or severely limited

Correct. In people who have been blind since birth and have then had their sight restored, depth perception is absent or severely limited.

- b) is fully present
- c) takes a while to recover

Incorrect. In people who have been blind since birth have then had their sight restored, depth perception is absent or severely limited.

- d) is slightly limited

ANS: a, p. 105, F, LO=3.8, (3)

166. The distance cue in which two parallel lines extend into the distance and seem to come together at one point is called _____.

- a) linear perspective

Correct. The distance cue in which two parallel lines extend into the distance and seem to come together at one point is called linear perspective.

- b) shadowing
- c) aerial perspective

Incorrect. The distance cue in which two parallel lines extend into the distance and seem to come together at one point is called linear perspective.

- d) motion parallax

ANS: a, p. 105, F, LO=3.8, (2)

167. Which of the following occurs when, because one object appears to be blocking another object, the viewer assumes that the blocked object is farther away?

- a) convergence

Incorrect. Overlap is the cue that occurs.

- b) linear perspective
- c) overlap

Correct. Overlap, or interposition, is the assumption that an object that appears to be blocking part of another object is in front of the second object and closer to the viewer.

- d) texture gradient

ANS: c, p. 105, F, LO=3.8, (2)

168. The depth cue in which faraway objects appear to be hazy and have a blurred outline is called _____.

- a) linear perspective
- b) shadowing

Incorrect. The depth cue in which faraway objects appear to be hazy and have a blurred outline is called aerial (atmospheric) perspective.

- c) aerial (atmospheric) perspective

Correct. The depth cue in which faraway objects appear to be hazy and have a blurred outline is called aerial (atmospheric) perspective.

- d) motion parallax

ANS: c, p. 106, F, LO=3.8, (2)

169. Texture gradient refers to the fact that texture appears to become _____.

- a) smaller and finer up close

Incorrect. Texture gradient refers to the fact that texture appears to become smaller and finer in the distance.

- b) more detailed as brightness increases
- c) less detailed in the distance

Correct. Texture gradient refers to the fact that texture appears to become smaller and finer, or less detailed, in the distance.

- d) less detailed when it is brighter

ANS: c, p. 106, F, LO=3.8, (2)

170. Visual distance and depth cues that require the use of both eyes are called _____.

- a) monocular cues
- b) diocular cues
- c) binocular cues

Correct. Visual distance and depth cues that require the use of both eyes are called binocular cues.

- d) dichromatic cues

Incorrect. Dichromatic is a term used for people who see only two colors. Visual distance and depth cues that require the use of both eyes are called binocular cues.

ANS: c, p. 107, F, LO=3.8, (2) SG

171. The fact that, when we look at an object, each one of our two eyes receives a slightly different image of the object is known as _____.

- a) binocular disparity

Correct. The fact that, when we look at an object, each one of our two eyes receives a slightly different image of the object is known as binocular disparity.

- b) binocular inversion
- c) convergence
- d) stereophonic vision

Incorrect. The fact that, when we look at an object, each one of our two eyes receives a slightly different image of the object is known as binocular disparity.

ANS: a, p. 107, F, LO=3.8, (2)

172. When Bill looks at his lamp alternately with his left eye and his right eye, the image seems to jump from one position to another. This phenomenon illustrates _____.

- a) the Gestalt principle of similarity
- b) binocular disparity

Correct. The fact that, when we look at an object, each one of our two eyes receives a slightly different image of the object is known as binocular disparity.

- c) interposition

Incorrect. Interposition, or overlap, is the assumption that an object that appears to be blocking part of another object is in front of the second object and closer to the viewer.

- d) the Gestalt principle of proximity

ANS: b, p. 107, A, LO=3.8, (2)

Learning Objective 3.9 - What are visual illusions, and how can they and other factors influence and alter perception?

173. An illusion _____.

- e) is the same thing as a vision

Incorrect. An illusion is a perception that does not correspond to reality. A vision is more dreamlike and does not occur as an alteration of a real stimulus.

- f) is due to the action of the rods versus the cones in the retina
- g) is a perception that does not correspond to reality

Correct. An illusion is a perception that does not correspond to reality. Objects look distorted in some fashion or a dimension is misperceived.

- h) corresponds directly to something that you dreamed

ANS: c, p. 108, C, LO=3.9, (2)

% correct 78 a= 19 b= 7 c= 78 d= 0 r = 2.8

174. The illusion based on the concept that most people live in a world with lots of buildings and corners is the _____.

- a) moon illusion

Incorrect. The illusion based on the concept that most people live in a world with lots of buildings and corners is the Müller-Lyer illusion.

- b) Poggendorf illusion
- c) Ponzo illusion
- d) Müller-Lyer illusion

Correct. The illusion based on the concept that most people live in a world with lots of buildings and corners is the Müller-Lyer illusion.

ANS: d, p. 108, C, LO=3.9, (3)

175. The Müller-Lyer illusion exists in cultures in which there are _____.

- a) more men than women
- b) more women than men

Incorrect. The Müller-Lyer illusion exists in cultures in which there are buildings with lots of corners. Gender is not a factor in the causality.

- c) lots of telephone poles
- d) buildings with lots of corners

Correct. The Müller-Lyer illusion exists in cultures in which there are buildings with lots of corners, which leads to misperception of depth.

ANS: d, p. 108, A, LO=3.9, (3)

% correct 93 a= 0 b= 7 c= 0 d= 93 r = .19

176. The best explanation of the moon illusion is _____.

- a) the apparent distance hypothesis

Correct. The best explanation of the moon illusion is the apparent distance hypothesis, which states that because the moon appears behind trees and houses, it is seen as being “behind” these objects and, therefore, farther away from the viewer. Because people know that objects that are farther away from them but still seem large must be very large, they “magnify” the moon in their perception.

- b) the angle world hypothesis
- c) the cultural bias hypothesis

Incorrect. Cultural bias has nothing to do with size perception. The best explanation of the moon illusion is the apparent distance hypothesis.

- d) the top-down processing hypothesis

ANS: a, p. 109, C, LO=3.9, (2)

177. People’s tendency to perceive a thing a certain way because their previous experiences or expectations influence them is called _____.

- a) top-down processing
- b) telepathy
- c) bottom-up processing

Incorrect. Perceptual expectancy refers to a person’s tendency to experience things in a certain way.

- d) perceptual expectancy

Correct. Perceptual expectancy refers to a person’s tendency to experience things in a certain way.

ANS: a, p. 111, A, LO=3.9, (3)

178. Suppose you are driving on a two-lane road on a very snowy night where the divider cannot be seen. However, in your mind, you’re able to reconstruct where the divider should be. This example illustrates _____.

- a) middle-up processing
- b) top-down processing

Correct. In top-down processing, the expectation of what we will encounter is what initiates the perception process.

- c) bottom-up processing

Incorrect. In bottom-up processing, the stimulus is what initiates the perception process. This example demonstrates the influence of expectancy on perception, which is an illustration of top-down processing.

d) a perceptual set

ANS: b, p. 111, A, LO=3.9, (2)

179. Analyzing smaller features and building up to a complete perception is called _____.

- a) top-down processing
- b) bottom-up processing

Correct. Bottom-up processing refers to building up a perception from smaller parts, or from the bottom, so to speak.

- c) perceptual construction
- d) hypothesis formation

Incorrect. Hypothesis formation is part of top-down processing.

ANS: b, p. 111, C, LO=3.9, (3)

% correct 93 a= 3 b= 93 c= 0 d= 4 r = .19

180. Bottom-up processing is initiated by _____.

- a) knowledge
- b) expectation

Incorrect. In top-down processing, the expectation of what we will encounter is what initiates the perception process.

- c) the stimulus

Correct. In bottom-up processing, the stimulus is what initiates the perception process.

- d) belief

ANS: c, p. 111, F, LO=3.9, (1)

Applying Psychology to Everyday Life—Beyond “Smoke and Mirrors” – The Psychological Science and Neuroscience of Magic

181. Which of the following is responsible for your perception that a pencil that is waved up and down is actually flexing and bending, even though it is made of solid wood?

- a) motor neurons

Incorrect. End-stopped neurons are responsible for the illusion of a flexing pencil.

- b) vacillatory neurons
- c) sensory neurons
- d) end-stopped neurons

Correct. End-stopped neurons are sensitive to both edges and motion and react differently if an object is bouncing or moving up and down very quickly.

ANS: d, p. 113, F, LO=3.9, (2)

182. If you were to take a sparkler at a July 4th picnic and “draw” your name in the air, your ability to see the light trail after the initial stimulus is facilitated by:

- a) persistence of vision

Correct. Persistence of vision allows us to see things as continuous when they are really discontinuous.

- b) end-stopped neurons
- c) bottom-up processing
- d) top-down processing

Incorrect. Top-down processing would not adequately explain why we experience a “tail” of light that does not truly exist.

ANS: a, p. 113, A, LO=3.9, (2)

TRUE OR FALSE

183. The minimum intensity of physical stimulation required to produce any sensation at all in a person is the just noticeable threshold.

ANS: F, p. 82, LO=3.1

184. When you stare at a picture for a long time, it does not fade away because your eye is making tiny eye movements that are called glissades.

ANS: F, p. 84, LO=3.1

185. Light has two natures and can be thought of as both a wave and a particle.

ANS: T, p. 84, LO=3.2

186. In daylight the shortest wavelengths of light in the visible spectrum will look red.

ANS: F, p. 85, LO=3.2

187. The amount of light let into the eye is controlled by the iris.

ANS: T, pp. 85-86, LO=3.2

188. The pathway from the retina to the brain that enables us to see is rods and cones to bipolar cells to ganglion cells to optic nerve.

ANS: T, p. 86, LO=3.2

189. The problem with the trichromatic theory of color vision is that it does not adequately explain color blindness and why staring at the reversed American flag produces an afterimage of a flag with the correct colors.

ANS: T, pp. 88-89, LO=3.3

190. The pitch of a sound (from a low bass to a high shriek) is related to the amplitude of the sound waves that reach the eardrum.

ANS: F, p. 92, LO=3.4

191. The correct order of the three bones of the middle ear, from outside to inside, is anvil, hammer, and stirrup.

ANS: F, p. 94, LO=3.4

192. The place theory of the perception of pitch is best identified with Helmholtz.

ANS: T, p. 94, LO=3.4

193. Nerve hearing impairment due to problems in the auditory cortex of the brain has been easily corrected with hearing aids.

ANS: F, p. 95, LO=3.4

194. There are seven primary tastes: hot, sour, spicy, sweet, brothy, acid, and bitter.

ANS: F, p. 97, LO=3.5

195. Olfactory receptor cells are located in the back of the throat.

ANS: F, p. 98, LO=3.5

196. Substance P is related to the sense of balance.

ANS: F, p. 101 LO=3.6

197. The ability to see 3-D movies is an instance of using motion parallax.

ANS: F, p. 106 LO=3.8

SHORT ANSWER

198. Briefly explain the concept of the absolute threshold.

p. 82, LO=3.1

199. What is the correct order of the parts of the eye from where light enters to where it causes a neural response to be sent up to the brain?

pp. 85-87, LO=3.2

200. Put the bones of the outer ear to the middle ear in the correct order from the eardrum to the oval window.

pp. 93-94, LO=3.4

201. Describe briefly the place theory and the frequency theory of pitch.

p. 94, LO=3.4

202. How do cochlear implants work?

p. 95, LO=3.4

203. What are the basic tastes?

p. 97, LO=3.5

204. How is the way the sense of taste works similar to the way the sense of smell works?

pp. 98-99, LO=3.5

205. What are the three somesthetic senses, and what does each one do?

pp. 99-102, LO=3.6

206. What's the difference between a monocular and binocular depth cue?

pp. 105-107, LO=3.8

207. What does culture have to do with the Müller-Lyer illusion?

pp. 108-109, LO=3.9

ESSAY

208. You decide to go to work for a presidential candidate in the next election. You think that the way for you to get folks to vote for your candidate is to use some psychology. So, you make a deal with a soft-drink company to insert a picture of your candidate into its commercials for only a brief instant. It will be so quick that no will notice the picture. That way the candidate's image will enter viewers' unconscious minds and make them vote for your candidate. What psychological processes are you trying to use, and are they likely to work?

p. 82, LO=3.1

209. Compare and contrast the trichromatic and opponent-process theories of color vision. How has this debate been resolved?

pp. 88-90, LO= 3.3

210. Describe how sound waves become nerve impulses as they enter the ear. How are the important characteristics of sound coded?

pp. 92-94, LO=3.4

211. List and explain two binocular cues for depth perception and two monocular cues. Why do we have two different types of cues for depth?

pp. 105-107, LO=3.8

212. Why do perceptual illusions occur? Give an example of a perceptual illusion and explain it in terms of your answer to the first part of this question.

pp. 108-111, F LO=3.9

In-Text Questions

Chapter 3

1. You find that you have to add 1 teaspoon of sugar to a cup of coffee that already has 5 teaspoons of sugar in it to notice the difference in sweetness. If you have a cup of coffee with 10 teaspoons of sugar in it, how many teaspoons would you have to add to notice the difference in sweetness at least half the time?

- a. 1
- b. 2
- c. 4
- d. 5

ANS: b

LO=3.1

2. The process by which the brain stops attending to constant, unchanging information is called _____.

- a. adaptation.
- b. sensation.
- c. habituation.
- d. accommodation.

ANS: c

LO=3.1

3. Which of the following terms refers to the psychological effect of the length of light waves?

- a. color
- b. brightness
- c. pitch
- d. amplitude

ANS: a

LO=3.2

4. Which of the following is responsible for controlling how much light enters the eye?

- a. cornea
- c. retina
- b. lens
- d. iris

ANS: d

LO=3.2

5. Which type of retinal cell forms the optic nerve?

- a. rods
- b. cones
- c. ganglion cells
- d. bipolar cells

ANS: c

LO=3.2

6. Which type of retinal cell plays a role in color vision?

- a. rods
- b. cones
- c. ganglion cells
- d. bipolar cells

ANS: b

LO=3.2

7. Which set of colors are the primary colors when mixing light?

- a. red, yellow, and blue
- b. red, blue, and green
- c. blue, green, and yellow
- d. red, green, and yellow

ANS: b

LO=3.2

8. Which of the following properties of sound would be the most similar to the brightness of light?

- a. pitch
- b. loudness
- c. purity
- d. timbre

ANS: b

LO=3.4

9. The thin membrane stretched over the opening to the inner ear is the _____.

- a. pinna.
- b. oval window.
- c. tympanic membrane.
- d. cochlea.

ANS: b

LO=3.4

10. The _____ theory appears to account for how we hear sounds between 400 and 4000 Hz.

- a. wave
- b. frequency
- c. volley
- d. adaptive

ANS: c

LO=3.4

11. If a severe ear infection damages the bones of the middle ear, you may develop _____ hearing impairment.

- a. nerve
- b. stimulation
- c. brain pathway
- d. conduction

ANS: d

LO=3.4

12. The sense of taste is closely related to the sense of _____.

- a. sight.
- b. hearing.
- c. smell.
- d. touch.

ANS: c

LO=3.5

13. The “bumps” on the tongue that are visible to the eye are the _____.

- a. taste buds.
- b. papillae.
- c. taste receptors.
- d. olfactory receptors.

ANS: b
LO=3.5

14. The olfactory receptor cells are located in the _____.
- a. tops of the nasal passages.
 - b. auditory passages.
 - c. roof of the mouth.
 - d. lining of the outer nose.

ANS: a
LO=3.5

15. Which of the following statements about olfactory receptors is TRUE?
- a. Olfactory receptors are replaced every 5 to 8 weeks.
 - b. There are fewer than 50 types of olfactory receptors.
 - c. Signals from the receptors go through the brain stem and then to the cortex.
 - d. Olfactory receptors respond to pressure.

ANS: a
LO=3.5

16. In the spinal cord, _____ inhibit(s) the release of substance P.
- a. hormones
 - b. serotonin
 - c. norepinephrine
 - d. endorphins

ANS: d
LO=3.6

17. We know when we are moving up and down in an elevator because of the movement of tiny crystals in the _____.
- a. outer ear.
 - b. inner ear.
 - c. otolith organs.
 - d. middle ear.

ANS: c
LO=3.6

18. Ellis turns around and around in a circle. When he stops, he feels like his head is still spinning. What is responsible for this sensation?
- a. semicircular canals
 - b. proprioceptors
 - c. otolith organs
 - d. otolith crystals

ANS: a
LO-3.6

19. An old comedy routine on television had a character who would line up the heads of people who were very far away from him between his fingers. Then he would pinch his fingers together and say gleefully, "I'm crushing your head, I'm crushing your head." The comedian was playing around with which perceptual constancy?
- a. size constancy
 - b. shape constancy
 - c. brightness constancy
 - d. color constancy

ANS: a
LO=3.7

20. Which Gestalt principle is at work when a ventriloquist moves the dummy's mouth while doing the talking, making it seem like the dummy is talking?

- a. closure
- b. similarity
- c. contiguity
- d. continuity

ANS: c

LO=3.7

21. Which of the following is occurring when looking down a set of railroad tracks, they appear to merge together in the distance?

- a. convergence
- b. linear perspective
- c. overlap
- d. texture gradient

ANS: b

LO=3.8

22. The Müller-Lyer illusion exists in cultures in which there are _____.

- a. more men than women.
- b. more women than men.
- c. lots of trees.
- d. buildings with lots of corners.

ANS: d

LO=3.9

23. Allison opened her new jigsaw puzzle but soon realized that the puzzle pieces inside had nothing to do with the picture on the box. With no picture to go by, she realized she would have to use _____.

- a. bottom-up processing.
- b. top-down processing.
- c. perceptual expectancy.
- d. perceptual set.

ANS: a

LO=3.9

24. Juan just attended a terrific magic show. In one of the tricks, the magician made a ball disappear that had just been in plain sight. Which aspect of our visual system likely allowed the magician to accomplish this illusion?

- a. lateral inhibition
- b. microsaccades of the eyes
- c. persistence of vision
- d. achromatopsia

ANS: c

LO=3.9

General Bank Questions

3: SENSATION AND PERCEPTION

The ABCs of Sensation

1. The wavelength of the light to reach your eyes determines what _____ you see.

- a. brightness
- b. hue
- c. saturation
- d. fine detail

Answer b % correct 89 a=9 b=89 c=2 d=0 r = .25

2. The idea that large fibers in the sensory nerves can prevent impulses from reaching the brain and thus prevent the sensation of pain is part of the _____ theory of pain.

- a. gate-control
- b. primary process
- c. free nerve ending
- d. volley

Answer a % correct 93 a=93 b=3 c=4 d=0 r = .43

3. The minimum intensity of physical stimulation required to produce any sensations at all in a person is the _____.

- a. absolute threshold
- b. difference threshold
- c. minimum threshold
- d. noticeable threshold

Answer a % correct 70 a=70 b=16 c=8 d=7 r = .32

4. Which of the following statements is true?

- a. Only the difference threshold varies from person to person.
- b. Only the absolute threshold is constant for all people.
- c. Both the difference threshold and the absolute threshold are constant for all people at all times.
- d. Both the absolute threshold and the difference threshold vary from person to person over time.

Answer d % correct 84 a=3 b=7 c=6 d=84 r = .21

5. "Sensation is to _____ as perception is to _____."

- a. psychological; physical
- b. gathering; understanding
- c. understanding; gathering
- d. interpreting; detecting

Answer b % correct 77 a=0 b=77 c=0 d=23 r = .47

6. Detecting "environmental stimulation" is one way to define _____.

- a. perception
- b. feeling
- c. sensation
- d. awareness

Answer c % correct 94 a=6 b=0 c=94 d=0 r = .28

7. The process whereby we receive information from the environment through our receptors is _____.

- a. encoding

- b. perception
- c. sensation
- d. transduction

Answer c % correct 54 a= 8 b= 8 c= 54 d= 31 r = .32

8. Sensation is _____.

- a. the organization of stimuli to create meaningful patterns
- b. the stimulation of the senses
- c. the presence of sensory cell activity in the absence of external stimulation
- d. the result of activity in the efferent nervous system

Answer b % correct 58 a= 24 b= 58 c= 8 d= 8 r = .43

9. Our _____ enable us to make sense of the sensations that we are continually experiencing.

- a. sensory organs
- b. motor abilities
- c. perceptual abilities
- d. sensory abilities

Answer c % correct 90 a= 5 b= 2 c= 90 d= 3 r = .24

10. The components in the sense organs that respond to energy are called _____.

- a. sensor cells
- b. receptor cells
- c. transducers
- d. effector cells

Answer b % correct 85 a= 3 b= 85 c= 10 d= 2 r = .30

11. The smallest change in stimulation that can be detected 50 percent of the time is called the _____.

- a. separation threshold
- b. difference threshold
- c. response threshold
- d. absolute threshold

Answer b % correct 58 a= 2 b= 58 c= 4 d= 35 r = .43

12. Which of the following is NOT a measure of threshold?

- a. absolute threshold
- b. difference threshold
- c. just noticeable difference
- d. separation threshold

Answer d % correct 74 a= 1 b= 7 c= 17 d= 74 r = .38

13. When Ann went to her doctor, he gave her a hearing test. During the test, the doctor struck several tuning forks, each of which vibrated at a distinct pitch, and asked her to choose two tones that sounded almost the same in pitch. The doctor was testing Ann's _____.

- a. auditory convergence
- b. refractory threshold
- c. absolute threshold
- d. difference threshold

Answer d % correct 66 a= 20 b= 4 c= 11 d= 66 r = .55

14. The point at which a person can detect a stimulus 50 percent of the time it is presented is called the _____.

- a. absolute threshold
- b. difference threshold
- c. range threshold
- d. noticeable threshold

Answer a % correct 68 a= 68 b= 13 c= 2 d= 17 r = .36

15. The term "just noticeable difference" is loosely synonymous with _____.

- a. separation threshold
- b. difference threshold
- c. response threshold
- d. absolute threshold

Answer b % correct 77 a= 1 b= 77 c= 3 d= 19 r = .34

16. Dr. Delmar wants to determine how loud a certain noise must be in order for it to be heard from a distance of 50 feet. Her question involves the concept of:

- a. relative magnitude.
- b. difference threshold.
- c. absolute threshold.
- d. just noticeable difference (jnd).

Answer c % correct 85 a= 15 b= 0 c= 85 d= 0 r = .73

17. If a researcher wanted to know how loudly a person must speak in order to be heard above the noise of two other simultaneous conversations, the researcher would likely measure the _____ .

- a. difference threshold
- b. marginal intensity
- c. relative magnitude
- d. absolute threshold

Answer a % correct 39 a= 39 b= 0 c= 22 d= 39 r = .27

18. Weber's Law states that a just noticeable change in a stimulus magnitude is _____ the original stimulus magnitude.

- a. proportional to
- b. equal to
- c. greater than
- d. less than

Answer a % correct 72 a= 72 b= 11 c= 0 d= 17 r = .29

19. Which of the following is NOT a measure of threshold?

- a. absolute threshold
- b. difference threshold
- c. just noticeable difference threshold
- d. separation threshold

Answer d % correct 61 a= 0 b= 6 c= 33 d= 61 r = .23

20. The minimum intensity of physical stimulation required to produce any sensation at all in a person is the _____.

- a. absolute threshold
- b. difference threshold
- c. minimum threshold
- d. noticeable threshold

Answer a % correct 83 a= 83 b= 8 c= 8 d= 0 r = .66

21. When Ann went to her doctor, he gave her a hearing test. During the test, the doctor struck several tuning forks, each of which was a distinct pitch, and asked her to choose two tones that sounded almost the same in pitch. The doctor was testing Ann's _____.

- a. auditory convergence
- b. refractory threshold
- c. absolute threshold
- d. difference threshold

Answer d % correct 83 a= 17 b= 0 c= 0 d= 83 r = .66

22. When Ann went to her doctor, he gave her a hearing test. During the test, the doctor presented tones to Ann through earphones. The tones varied only along the loud-soft dimensions (from very loud to very soft). The doctor asked Ann to raise her hand whenever she heard a sound. The doctor was testing Ann's _____.

- a. auditory convergence
- b. refractory threshold
- c. absolute threshold
- d. difference threshold

Answer c % correct 38 a= 15 b= 0 c= 38 d= 46 r = .54

23. Professor Zander wants to know how loud a certain noise must be in order to be heard from a distance of 50 feet. This question involves the concept of _____.

- a. relative magnitude
- b. difference threshold
- c. absolute threshold
- d. inverse discrimination

Answer c % correct 78 a= 17 b= 6 c= 78 d= 0 r = .26

The Science of Seeing

24. The amount of light entering the eye is controlled by the _____.

- a. cornea
- b. pupil
- c. lens
- d. retina

Answer b % correct 68 a= 14 b= 68 c= 8 d= 9 r = .41

25. The pupil is the _____.

- a. opening in the center of the iris
- b. colored part of the eye
- c. white of the eye
- d. lining in the back of the eyeball

Answer a % correct 93 a= 93 b= 6 c= 1 d= 0 r = .19

26. The colored part of the eye which contains muscles to contract or expand the pupil is the _____.

- a. lens
- b. fovea
- c. iris
- d. cornea

Answer c % correct 95 a= 1 b= 2 c= 95 d= 3 r = .27

27. If you stare for 30 seconds at a red object and then look at a blank sheet of white paper, you will see a greenish image of the object. This phenomenon best supports the:

- a. Young-Helmholtz opponent-process theory of color vision.
- b. Young-Helmholtz trichromatic theory of color vision.
- c. Hering opponent-process theory of color vision.
- d. Hering trichromatic theory of color vision.

Answer c % correct 54 a= 17 b= 21 c= 54 d= 8 r = .32

28. The depressed spot in the retina which occupies the center of the visual field in which images are focused MOST sharply is called the:

- a. fovea.
- b. cornea.

- c. iris.
- d. optic nerve.

Answer a % correct 77 a= 77 b= 12 c= 7 d= 4 r = .59

29. A young man enters a completely darkened room and lights a candle. Which of the following sequences best represents the candle's light as it enters his eye?

- a. cornea-pupil-lens-retina
- b. pupil-cornea-lens-retina
- c. lens-cornea-pupil-retina
- d. retina-pupil-lens-cornea

Answer a % correct 61 a= 61 b= 13 c= 18 d= 8 r = .52

30. When John drives his car at night, he finds that he can barely see traffic and street signs if he looks directly at them. He can increase his visual sensitivity by looking at the signs:

- a. out of the side of his eye, because doing so focuses the image on the blind spot
- b. out of the side of his eye (using more rods) instead of focusing directly on them (using more cones)
- c. and squinting, which focuses the available light more precisely
- d. out of the side of his eye (using more cones) instead of focusing directly on them (using more rods)

Answer b % correct 62 a= 2 b= 62 c= 16 d= 20 r = .37

31. The pupil is the:

- a. opening in the center of the iris.
- b. colored part of the eye.
- c. white of the eye.
- d. lining in the back of the eyeball.

Answer a % correct 89 a= 89 b= 11 c= 0 d= 0 r = .29

32. Which type of receptor cell is associated with seeing colors?

- a. ganglia
- b. bipolar
- c. rods
- d. cones

Answer d % correct 92 a= 0 b= 3 c= 5 d= 92 r = .52

33. Window pane is to _____ as color is to iris.

- a. retina
- b. cornea
- c. lens
- d. fovea

Answer a % correct 97 a= 3 b= 0 c= 0 d= 97 r = .35

34. The lens:

- a. is the transparent outer membrane of the eye that covers the pupil and iris.
- b. allows one to focus on objects at different distances.
- c. allows light initially to enter the eye.
- d. controls the amount of light entering the eye.

Answer b % correct 77 a= 15 b= 77 c= 8 d= 0 r = .47

35. The eyes convert light energy into neural responses that we experience as sight. The conversion of light energy into sight is done by receptor cells in the _____.

- a. iris
- b. pupil
- c. blind spot
- d. retina

Answer d % correct 92 a= 0 b= 8 c= 0 d= 92 r = .41

36. _____ are receptors that are best for seeing details.

- a. Cones
- b. Rods
- c. Bipolar cells
- d. Ganglion cells

Answer a % correct 94 a=94 b=0 c=0 d=6 r = .20

37. Lory entered a dark movie theater from the bright sunlight. Which of the following was occurring in her retinal system?

- a. a slow shift from cone vision to rod vision
- b. a rapid shift from cone vision to rod vision
- c. a slow shift from rod vision to cone vision
- d. a rapid shift from rod vision to cone vision

Answer a % correct 39 a=39 b=44 c=0 d=17 r = .29

38. Light enters the eye through the _____.

- a. cornea
- b. pupil
- c. iris
- d. retina

Answer a % correct 58 a=58 b=33 c=0 d=8 r = .33

39. The inner lining on the back of the eyeball which is sensitive to light is called the _____.

- a. fovea
- b. retina
- c. iris
- d. optic nerve

Answer b % correct 83 a=8 b=83 c=8 d=0 r = .36

40. Light is focused on the retina by the _____.

- a. cornea
- b. pupil
- c. iris
- d. lens

Answer d % correct 92 a=0 b=0 c=8 d=92 r = .28

41. The depressed spot in the retina which occupies the center of the visual field in which images are focused MOST sharply is called the _____.

- a. fovea
- b. cornea
- c. iris
- d. optic nerve

Answer a % correct 77 a=77 b=8 c=0 d=15 r = .77

42. The shape of the lens adjusts in order to _____.

- a. protect the eye from too much light
- b. let in more light when it is dark
- c. focus on different objects at different distances
- d. allow time for the eye to adjust to bright light

Answer c % correct 92 a=8 b=0 c=92 d=0 r = .28

43. Rods and cones are found in the _____.

- a. retina
- b. iris

- c. optic nerve
- d. cornea

Answer a % correct 89 a= 89 b= 6 c= 0 d= 6 r = .30

44. Rods and cones are connected to _____.

- a. optic neurons
- b. bipolar neurons
- c. interneurons
- d. efferent neurons

Answer b % correct 75 a= 17 b= 75 c= 8 d= 0 r = .30

45. The place in the retina where the axons of all the ganglion cells come together to leave the eye is called the _____.

- a. fovea
- b. optic chiasma
- c. blind spot
- d. optic nerve

Answer c % correct 39 a= 6 b= 11 c= 39 d= 44 r = .23

46. Light receptors which see best at night are the _____.

- a. foveas
- b. cones
- c. shafts
- d. rods

Answer d % correct 100 a= 0 b= 0 c= 0 d= 100 r = .00

47. The eyes detect different colors by using the _____.

- a. cortex
- b. cones
- c. shafts
- d. rods

Answer b % correct 83 a= 8 b= 83 c= 0 d= 8 r = .33

48. The range of electromagnetic wavelengths that we can see is called the:

- a. visible spectrum.
- b. acuity range.
- c. visual field.
- d. visual angle.

Answer a % correct 94 a= 94 b= 0 c= 6 d= 0 r = .28

49. The ability to discern fine details in visual patterns is termed:

- a. temporal acuity.
- b. visual perspicacity.
- c. visual acuity.
- d. myopia.

Answer c % correct 92 a= 0 b= 0 c= 92 d= 8 r = .41

50. What structure in your eye is most like the film in a camera?

- a. the retina
- b. the lens
- c. the cornea
- d. the pupil

Answer a % correct 78 a= 78 b= 6 c= 11 d= 6 r = .66

51. Adaptation is the process in which _____.

- a. receptor cells become linked to one another
- b. receptor sensitivity changes depending upon the intensity of the stimulus
- c. visual acuity improves as one centers an object's light on the fovea
- d. nonspectral colors can be seen

Answer b % correct 83 a= 8 b= 83 c= 8 d= 0 r = .36

52. The process by which rods and cones become more sensitive to light in response to lowered levels of illumination is called _____.

- a. afterimage resolution
- b. light adaptation
- c. dark adaptation
- d. afterimage adaptation

Answer c % correct 77 a= 0 b= 15 c= 77 d= 8 r = .47

Color Vision

53. The aspect of color that corresponds to names such as red, green, and blue is _____.

- a. brightness
- b. hue
- c. saturation
- d. fine detail

Answer b % correct 74 a= 7 b= 74 c= 16 d= 3 r = .39

54. The purity, richness, or vividness of a hue is known as its _____.

- a. brightness
- b. saturation
- c. additive mix
- d. depth

Answer b % correct 60 a= 34 b= 60 c= 0 d= 7 r = .20

55. The vividness or richness of a hue is known as its:

- a. brightness.
- b. saturation.
- c. additive mix.
- d. complement.

Answer b % correct 66 a= 32 b= 66 c= 1 d= 1 r = .44

56. Hue, saturation, and brightness are three separate aspects of our experience of:

- a. sensation.
- b. acuity.
- c. color.
- d. night vision.

Answer c % correct 80 a= 3 b= 12 c= 80 d= 4 r = .39

57. The Young-Helmholtz theory of color vision assumes that:

- a. color receptors exist in opposing pairs.
- b. color perception is determined by differences in the firing rates of three types of retinal cells.
- c. there are three different types of cones.
- d. all of the above

Answer c % correct 39 a= 17 b= 17 c= 39 d= 27 r = .27

58. The opponent-process theory of color vision contends that color vision is a result of:

- a. lateral inhibition on the retina itself.
- b. lateral inhibition in the visual cortex.

- c. calculation of differences in the firing rates of three types of retinal cells.
- d. competition between three types of rods and three types of cones.

Answer c % correct 72 a=0 b=8 c=72 d=20 r = .23

59. The trichromatic receptor theory explains how different color receptors in the eye combine to produce color vision. However, this theory does NOT explain:

- a. negative afterimages.
- b. how color receptors respond differently to different colors.
- c. how many color receptors the retina must utilize in order to produce color vision.
- d. color vision.

Answer a % correct 64 a=64 b=25 c=7 d=4 r = .64

60. The wavelength of the light to reach your eyes determines what _____ you see.

- a. brightness
- b. hue
- c. saturation
- d. fine detail

Answer b % correct 83 a=8 b=83 c=0 d=8 r = .30

61. Red, green, and blue are _____.

- a. primary colors
- b. secondary colors
- c. additive colors
- d. complementary colors

Answer a % correct 85 a=85 b=0 c=8 d=8 r = .21

The Hearing Sense

62. The physical stimuli for the sense of hearing are called _____ waves.

- a. alpha
- b. infrared
- c. sound
- d. sine

Answer c % correct 81 a=10 b=1 c=81 d=7 r = .22

63. The changes in pressure caused when molecules of air or fluid collide with one another then move apart again are called _____.

- a. hertz
- b. sound waves
- c. decibels
- d. pitch

Answer b % correct 53 a=15 b=53 c=20 d=9 r = .27

64. The structures in the inner ear that are particularly sensitive to body rotation are the _____.

- a. vestibular sacs
- b. saccules
- c. semicircular canals
- d. papillae

Answer c % correct 40 a=40 b=8 c=40 d=11 r = .20

65. Hertz is a unit of measurement of _____.

- a. frequency
- b. amplitude
- c. loudness

d. overtones

Answer a % correct 81 a= 81 b= 9 c= 10 d= 0 r = .26

66. Frequency theory proposes that:

a. pitch is determined by the location on the basilar membrane where the message originated.

b. pitch is determined by the quality of the sound wave.

c. the frequency of the vibrations of the basilar membrane is translated into an equivalent frequency of nerve impulses.

d. nerve cells fire in sequence, not individually.

Answer c % correct 56 a= 21 b= 13 c= 56 d= 10 r = .21

67. The outer ear is also known as the _____.

a. funneloreum

b. pinna

c. canal

d. lobe

Answer b % correct 83 a= 0 b= 83 c= 6 d= 11 r = .23

68. The middle ear includes the _____.

a. ear canal

b. round window

c. hammer

d. basilar membrane

Answer d % correct 67 a= 0 b= 33 c= 0 d= 67 r = .20

69. The flexible membrane inside the cochlea is called the:

a. round window.

b. eardrum.

c. oval window.

d. basilar membrane.

Answer d % correct 69 a= 0 b= 23 c= 8 d= 69 r = .66

70. The oval window, cochlea, and basilar membrane are all part of the:

a. middle ear.

b. inner ear.

c. external ear.

d. auditory chamber.

Answer b % correct 77 a= 15 b= 77 c= 8 d= 0 r = .58

71. An increase in the frequency of sound waves will correspond most directly to an increase in _____.

a. amplitude

b. pitch

c. loudness

d. decibels

Answer b % correct 72 a= 11 b= 72 c= 11 d= 6 r = .53

72. Humans hear sounds ranging from 16 to _____ hertz.

a. 100

b. 6,000

c. 20,000

d. 1,500

Answer c % correct 62 a= 0 b= 0 c= 62 d= 38 r = .59

73. As sounds become louder, their _____ increases.

a. frequency

b. pitch

- c. amplitude
- d. hertz

Answer c % correct 85 a= 8 b= 8 c= 85 d= 0 r = .60

74. The boundary between the middle and inner ear is the:

- a. basilar membrane.
- b. cochlea.
- c. eardrum.
- d. oval window.

Answer d % correct 50 a= 22 b= 11 c= 17 d= 50 r = .76

75. The physical stimuli for the sense of hearing are called _____ waves.

- a. alpha
- b. radio
- c. sound
- d. beta

Answer c % correct 83 a= 8 b= 8 c= 83 d= 0 r = .27

76. Frequency determines _____.

- a. pitch
- b. amplitude
- c. timbre
- d. overtones

Answer a % correct 75 a= 75 b= 8 c= 8 d= 8 r = .69

77. The height of a sound wave represents its _____.

- a. pitch
- b. amplitude
- c. timbre
- d. overtones

Answer b % correct 92 a= 8 b= 92 c= 0 d= 0 r = .58

78. Hertz is a unit of measurement of _____.

- a. frequency
- b. amplitude
- c. loudness
- d. overtones

Answer a % correct 67 a= 67 b= 17 c= 17 d= 0 r = .35

79. Decibels are used to measure _____.

- a. frequency
- b. amplitude
- c. loudness
- d. overtones

Answer c % correct 72 a= 11 b= 17 c= 72 d= 0 r = .51

80. The hammer, anvil, and stirrup are the _____.

- a. three components of the eardrum
- b. three tiny bones in the middle ear
- c. membranes in the oval window
- d. three components of the basilar membrane cochlea

Answer b % correct 92 a= 8 b= 92 c= 0 d= 0 r = .20

81. Hearing begins when sound waves bump against the _____.

- a. earlobe

- b. eardrum
- c. oval window
- d. round window

Answer b % correct 92 a= 0 b= 92 c= 8 d= 0 r = .20

82. The hammer, anvil, and stirrup are all located in the _____.

- a. middle ear
- b. inner ear
- c. external ear
- d. oval window

Answer a % correct 72 a= 72 b= 27 c= 0 d= 0 r = .34

83. The place theory and the frequency theory help to explain _____.

- a. how a wide range of frequencies is heard by the ear
- b. how amplitude is regulated by the ear
- c. how sounds are located
- d. how "boilermakers' deafness" occurs

Answer a % correct 83 a= 83 b= 6 c= 11 d= 0 r = .63

84. The audible range of frequencies for human beings is _____ cycles per second.

- a. 2 to 50,000
- b. 120 to 50,000
- c. 1 to 10,000
- d. 20 to 20,000

Answer d % correct 67 a= 22 b= 11 c= 0 d= 67 r = .59

Chemical Senses

85. The patch of nasal membrane tissue that houses receptor cells for smell is the _____.

- a. olfactory bulb
- b. Golgi tendon organ
- c. olfactory epithelium
- d. olfactory mucosa

Answer c % correct 49 a= 35 b= 3 c= 49 d= 13 r = .18

86. Axons from the nerve cells in the nose carry messages directly to the _____ of the brain.

- a. olfactory epithelium
- b. olfactory bulbs
- c. papillae
- d. vomeronasal organ

Answer b % correct 42 a= 46 b= 42 c= 6 d= 5 r = .23

87. The first location to receive smell information in the brain is the _____.

- a. olfactory bulb
- b. olfactory epithelium
- c. thalamus
- d. vomeronasal organ

Answer a % correct 48 a= 48 b= 29 c= 20 d= 3 r = .22

88. The four primary taste sensations are sweet, bitter, sour, and _____.

- a. neutral
- b. tart
- c. acid

d. salty

Answer d % correct 89 a= 6 b= 6 c= 0 d= 89 r = .20

89. Which of the following is NOT one of the four primary taste qualities that humans perceive?

a. bitter

b. sour

c. tart

d. salt

Answer c % correct 87 a= 1 b= 1 c= 87 d= 11 r = .49

90. Flavor is:

a. taste.

b. smell.

c. a combination of taste and smell.

d. a combination of touch and taste.

Answer c % correct 91 a= 8 b= 2 c= 91 d= 0 r = .31

91. Taste buds are contained in the tongue's _____.

a. papillae

b. hair cells

c. underside

d. sacculles

Answer a % correct 83 a= 83 b= 8 c= 0 d= 8 r = .56

92. A spook house in a local carnival offered its potential patrons free admission if they would allow themselves to be blindfolded and then to eat raw worms. Although they were actually fed cold spaghetti, most of the customers believed they were swallowing real worms. What is the MOST plausible explanation for this finding?

a. The cold spaghetti dulled nerve endings in the taste buds.

b. This particular food failed to depolarize adjacent neurons in the tongue.

c. Food flavor is really a composite of taste, smell, sight, and texture.

d. Sensory receptors in the brain were not activated.

Answer c % correct 92 a= 0 b= 8 c= 92 d= 0 r = .23

Somesthetic Senses

93. The senses that monitor our equilibrium and awareness of body position in space are the _____ senses.

a. vestibular

b. olfactory

c. cutaneous

d. kinesthetic

Answer a % correct 32 a= 32 b= 6 c= 2 d= 58 r = .21

94. The vestibular sense governs our awareness of _____.

a. pressure

b. temperature

c. equilibrium

d. pain

Answer c % correct 54 a= 13 b= 11 c= 54 d= 21 r = .31

Answer c % correct 83 a= 0 b= 8 c= 83 d= 8 r = .27

95. Jane jumps out of bed to the sound of the alarm clock. As she reaches her feet, she feels very dizzy for a few seconds. As her system readjusts to her standing, she begins to regain her sense of balance. The source of Jane's dizziness is probably in the:

a. vestibular senses

- b. skin senses
- c. olfactory senses
- d. papillary senses

Answer a % correct 78 a= 78 b= 0 c= 18 d= 3 r = .48

96. The vestibular sacs control that body's sense of:

- a. gravity and movement.
- b. body rotation.
- c. pain.
- d. pressure.

Answer a % correct 55 a= 55 b= 20 c= 12 d= 13 r = .31

97. The vestibular system monitors:

- a. body orientation and its changes.
- b. hearing.
- c. visual acuity.
- d. temperature sensations.

Answer a % correct 78 a= 78 b= 6 c= 0 d= 17 r = .69

98. What sensations are detected by the skin?

- a. pressure, pain, warmth, and cold
- b. only pain, warmth, and cold
- c. only pressure, pain, and warmth
- d. only pressure and pain

Answer a % correct 94 a= 94 b= 6 c= 0 d= 0 r = .23

The ABCs of Perception

99. Some pictures are intentionally designed so that one can see two different images in the same picture. This is called _____.

- a. the perceptual shift
- b. figure-ground reversal
- c. proximodistal perception
- d. an illusion

Answer b % correct 63 a= 15 b= 63 c= 6 d= 16 r = .38

```

0 0 0 0
X X X X
0 0 0 0

```

100. In the figure above, seeing rows of 0s and rows of Xs illustrates the Gestalt law of _____.

- a. figure-ground
- b. similarity
- c. proximity
- d. closure

Answer b % correct 82 a= 4 b= 82 c= 12 d= 3 r = .51

101. Which Gestalt law of organization must always occur even if other laws of organization are also illustrated?

- a. figure-ground
- b. similarity
- c. proximity
- d. closure

Answer a % correct 60 a= 60 b= 14 c= 21 d= 4 r = .30

102. Elements that share common features such as size, shape, or color are viewed as a set. This defines which Gestalt law of organization?

- a. figure-ground
- b. similarity
- c. proximity
- d. closure

Answer b % correct 90 a= 5 b= 90 c= 3 d= 2 r = .20

103. Perceiving incomplete objects as complete defines

- a. figure-ground.
- b. similarity.
- c. proximity.
- d. closure.

Answer d % correct 76 a= 10 b= 4 c= 10 d= 76 r = .21

104. Figure-ground is to _____ as dream interpretation is to psychoanalysis.

- a. structuralism
- b. functionalism
- c. Gestalt
- d. humanism

Answer c % correct 57 a= 28 b= 13 c= 57 d= 3 r = .22

105. Experiencing MEANINGFUL patterns in the jumble of sensory information received by the brain is _____.

- a. sensation
- b. perception
- c. adaptation
- d. transduction

Answer b % correct 80 a= 7 b= 80 c= 3 d= 10 r = .34

106. Gestalt theorists propose that much of what we see is divided into:

- a. proximal and distal.
- b. figure and ground.
- c. standard and deviant.
- d. chromatic and monocular.

Answer b % correct 80 a= 7 b= 80 c= 6 d= 7 r = .34

107. Gestalt theorists are known for explaining:

- a. figure-ground reversals.
- b. the law of similarity.
- c. the law of proximity.
- d. all of the above

Answer d % correct 68 a= 22 b= 6 c= 5 d= 68 r = .21

108. Perceptions differ from sensations in that:

- a. perceptions depend as much on prior experience as they do on neural cues traveling between receptors and the brain.
- b. perceptions are purely psychological, whereas sensations are purely neural.
- c. each sensation is actually a large set of perceptions.
- d. sensations depend mostly on learning, whereas perceptions are innate processes.

Answer a % correct 49 a= 49 b= 30 c= 5 d= 17 r = .23

109. Which Gestalt law of organization must always occur even if other laws of organization are also illustrated?

- a. figure-ground
- b. similarity

- c. proximity
- d. closure

Answer a % correct 64 a= 64 b= 13 c= 16 d= 6 r = .29

Perception and Perceptual Constancies

110. Our tendency to see objects as relatively stable and unchanging despite changing sensory information is called perceptual _____.

- a. closure
- b. constancy
- c. reversibility
- d. coherency

Answer b % correct 91 a= 2 b= 91 c= 1 d= 5 r = .30

111. When we look at a white house, we can recognize it as a white house by day or night and from any angle. This is due to perceptual _____.

- a. closure
- b. constancy
- c. reversibility
- d. coherency

Answer b % correct 86 a= 2 b= 86 c= 1 d= 10 r = .42

112. Whether you are standing right next to it or a mile away from it, you know a tree is the same size because of _____.

- a. the figure-ground distinction
- b. the phi phenomenon
- c. perceptual constancy
- d. retinal disparity

Answer c % correct 88 a= 10 b= 1 c= 88 d= 1 r = .42

113. You are told you are going to be shown some words related to food. The experiment then shows you the "pizao" and you perceive the word "pizza." This shows that your perceptions are affected by your _____.

- a. motivations
- b. expectations
- c. cognitive style
- d. cultural background

Answer b % correct 78 a= 0 b= 78 c= 11 d= 11 r = .23

114. Perrone's result, using a rigid box moving away from the observer, suggests that the contraction of the retinal image causes the observer to perceive that the box was moving away and getting smaller. The perception of the box getting smaller SEEMS to violate which of the following?

- a. size constancy
- b. shape constancy
- c. figure-ground reversal
- d. proximity

Answer a % correct 90 a= 90 b= 2 c= 2 d= 6 r = .24

115. The _____ states that we see an object's size as constant even if the object's distance from us changes.

- a. law of size constancy
- b. visual angle theory
- c. retinal image theory
- d. Ames Room theory

Answer a % correct 88 a= 88 b= 2 c= 10 d= 1 r = .32

116. Which of the following is NOT a perceptual constancy?

- a. size
- b. shape
- c. brightness
- d. linear perspective

Answer d % correct 71 a= 4 b= 7 c= 19 d= 71 r = .29

117. People with normal vision will perceive a pyramid whether they see the object from the side, top, or any other angle as long as the object is, in fact, a pyramid. This is the law of:

- a. shape constancy.
- b. size constancy.
- c. figure-ground.
- d. visual angle.

Answer a % correct 89 a= 89 b= 1 c= 1 d= 9 r = .20

118. "Single-eye vision is to _____ as double-eye vision is to _____."

- a. kinetic; monocular
- b. monocular; kinetic
- c. monocular; binocular
- d. binocular; monocular

Answer c % correct 97 a= 1 b= 0 c= 97 d= 2 r = .22

119. You are seated at a small table talking to a friend opposite you who is drinking coffee. As she lifts the cup off the saucer and raises it to her mouth, the image made on your retina by the bottom of the cup actually changes shape, but you still "see" it as round due to:

- a. good continuation.
- b. movement parallax.
- c. perceptual constancy.
- d. proximity.

Answer c % correct 85 a= 1 b= 12 c= 85 d= 2 r = .25

120. The effects of the Ames Room are due primarily to distortions in:

- a. aerial perspective.
- b. distance.
- c. size.
- d. texture gradient.

Answer b % correct 53 a= 12 b= 53 c= 28 d= 7 r = .32

121. Our tendency to see objects as relatively stable and unchanging despite changing sensory information is called _____.

- a. closure
- b. constancy
- c. reversibility
- d. coherency

Answer b % correct 91 a= 7 b= 91 c= 1 d= 1 r = .31

122. When we look at a white house, we can recognize it as a white house by day or night and from any angle. This is due to perceptual _____.

- a. closure
- b. constancy
- c. reversibility
- d. coherency

Answer a % correct 94 a= 94 b= 1 c= 2 d= 3 r = .31

123. Color, shape, size, and brightness are all types of perceptual _____.

- a. closure
- b. constancy
- c. reversibility
- d. coherency

Answer b % correct 78 a= 1 b= 78 c= 3 d= 19 r = .48

124. Size constancy explains why _____.

- a. objects are perceived as having constant dimensions regardless of distance
- b. perception of size is inversely related to distance
- c. closer objects are perceived as smaller than far-away objects
- d. distance affects perceived size

Answer a % correct 53 a= 53 b= 8 c= 4 d= 35 r = .49

125. Whether you are standing right next to it or a mile away from it, you know a tree is the same size because of _____.

- a. the figure-ground distinction
- b. the phi phenomenon
- c. perceptual constancy
- d. retinal disparity

Answer c % correct 73 a= 12 b= 3 c= 73 d= 12 r = .34

126. When you stand to the side of a window frame, it casts a trapezoidal (nonrectangular) image on your retina. It still seems rectangular to you, though, because of _____.

- a. size constancy
- b. shape constancy
- c. figure-ground constancy
- d. the phi phenomenon

Answer b % correct 97 a= 2 b= 97 c= 1 d= 0 r = .18

127. People with normal vision will perceive a pyramid whether they see the object from the side, top, or any other angle as long as the object is, in fact, a pyramid. This is the law of _____.

- a. shape constancy
- b. size constancy
- c. figure-ground
- d. visual angle

Answer a % correct 84 a= 84 b= 1 c= 4 d= 11 r = .37

128. The law of brightness constancy suggests that our perception of an object is a result of the _____ of the light from the object divided by the light surrounding it.

- a. sum
- b. ratio
- c. amount
- d. intensity

Answer b % correct 23 a= 5 b= 23 c= 19 d= 53 r = .28

Depth Processing (Monocular)

129 The distance cue in which objects at greater distances appear to be smoother is _____.

- a. linear perspective
- b. aerial perspective
- c. texture gradient
- d. motion parallax

Answer c % correct 84 a= 9 b= 4 c= 84 d= 4 r = .31

130. The distance cue in which two parallel lines extend into the distance and seem to come together at one point is called _____.

- a. linear perspective
- b. aerial perspective
- c. shadowing
- d. motion parallax

Answer a % correct 94 a= 94 b= 1 c= 1 d= 4 r = .28

131. While riding on a train, David notices that the trees and telephone poles close to the tracks seem to flash by, while the buildings, trees, and mountains that are farther away seem to move by more slowly. This phenomenon is called _____.

- a. aerial perspective
- b. subliminal motion
- c. motion parallax
- d. motion differential

Answer c % correct 48 a= 12 b= 3 c= 48 d= 37 r = .31

132. "One-eye vision is to _____ as two-eye vision is to _____."

- a. kinetic; monocular
- b. monocular; kinetic
- c. monocular; binocular
- d. binocular; monocular

Answer c % correct 97 a= 1 b= 1 c= 97 d= 1 r = .22

133. How blurry-looking an object appears and linear perspective are cues associated with _____ depth perception.

- a. binocular disparity
- b. kinesthetic
- c. monocular
- d. binocular

Answer c % correct 62 a= 7 b= 18 c= 62 d= 13 r = .58

134. Which of the following is an example of a monocular cue?

- a. far objects looking clear, and near ones looking blurry
- b. the trees in a forest converging in the distance
- c. the double image of a finger held in front of one eye
- d. the appearance of a small light making movements against a dark background

Answer b % correct 54 a= 20 b= 54 c= 20 d= 6 r = .38

135. Which of the following is NOT a monocular cue?

- a. clearness
- b. linear perspective
- c. retinal disparity
- d. texture

Answer c % correct 74 a= 8 b= 7 c= 74 d= 11 r = .46

136. When you look out the window of a car that is traveling 60 mph, objects at different locations appear to move in different directions and different speeds. This apparent motion is known as:

- a. the kinetic depth effect.
- b. motion parallax.
- c. movement illusion.
- d. linear perspective.

Answer b % correct 85 a= 6 b= 85 c= 5 d= 3 r = .31

137. When you look out the window of a car that is traveling 60 mph, close objects appear:

- a. to be moving faster than far ones.
- b. to be moving slower than far ones.
- c. to be moving at the same speed as far ones.
- d. to be stationary and the far ones appear to be moving in the opposite direction as the car.

Answer a % correct 92 a= 92 b= 3 c= 0 d= 5 r = .20

138. The distance cue in which two parallel lines extend into the distance and seem to come together at one point is called _____.

- a. linear perspective
- b. aerial perspective
- c. shadowing
- d. motion parallax

Answer a % correct 95 a= 95 b= 1 c= 0 d= 4 r = .33

139. The distance cue in which faraway objects appear to be hazy and have a blurred outline is called _____.

- a. linear perspective
- b. aerial perspective
- c. shadowing
- d. motion parallax

Answer b % correct 64 a= 16 b= 64 c= 14 d= 6 r = .43

140. Texture gradient refers to the fact that texture appears to become _____.

- a. more detailed in the distance
- b. less detailed in the distance
- c. more detailed as brightness increases
- d. less detailed as brightness increases

Answer b % correct 94 a= 3 b= 94 c= 3 d= 0 r = .31

141. Which of the following choices is NOT a monocular cue that painters can incorporate into their work to convey information about the relative distances of objects?

- a. superposition
- b. linear perspective
- c. aerial perspective
- d. convergence

Answer d % correct 39 a= 38 b= 5 c= 17 d= 39 r = .37

142. The monocular distance cue in which objects closer than the point of visual focus seem to move in the direction opposite to the viewer's moving head, and objects beyond the viewing point move in the same direction as the viewer's head is _____.

- a. retinal disparity
- b. motion parallax
- c. subliminal motion
- d. motion differential

Answer b % correct 64 a= 18 b= 64 c= 3 d= 16 r = .31

143. While riding on a train, David notices that the trees and telephone poles close to the tracks seem to flash by, while the buildings, trees, and mountains that are farther away seem to move by more slowly. This phenomenon is called _____.

- a. aerial perspective
- b. subliminal motion
- c. motion parallax
- d. motion differential

Answer c % correct 85 a= 4 b= 3 c= 85 d= 8 r = .32

144. Clearness and linear perspective are examples of _____ cues for depth perception.

- a. binocular
- b. kinetic
- c. monocular
- d. all of the above

Answer c % correct 67 a= 12 b= 2 c= 67 d= 19 r = .46

145. If perceptual information aiding in depth perception must be drawn simultaneously from both eyes, it is referred to as _____.

- a. a monocular cue
- b. a binocular cue
- c. contralateral input
- d. a duoretinal image

Answer b % correct 93 a= 4 b= 93 c= 1 d= 2 r = .20

146. The impression of depth can be created or enhanced in visual art by encouraging the person viewing a drawing to assume that converging lines are actually parallel. This artistic ploy uses the depth cue of _____.

- a. interposition
- b. elevation
- c. accommodation
- d. linear perspective

Answer d % correct 91 a= 4 b= 2 c= 3 d= 91 r = .28

147. A drawing of a gravel road depicts the tiny rocks as becoming smaller and less distinct as one looks "down the lane." This simulation of depth on a two-dimensional sheet of paper is an example of the _____ cue.

- a. interposition
- b. texture gradient
- c. elevation
- d. shadowing

Answer b % correct 87 a= 8 b= 87 c= 4 d= 1 r = .32

148. Which of the following is an example of a monocular cue?

- a. far objects looking clear, and near ones looking blurry
- b. the trees in a forest converging in the distance
- c. the double image of a finger held in front of one eye
- d. the appearance of a small light making movements against a dark background

Answer b % correct 62 a= 15 b= 62 c= 14 d= 8 r = .46

149. Railroad tracks converging in the distance best illustrate which monocular cue?

- a. texture gradient
- b. linear perspective
- c. texture gradient and linear perspective
- d. clearness and texture gradient

Answer b % correct 90 a= 1 b= 90 c= 8 d= 1 r = .36

Depth Processing (Binocular)

150. The differences between the separate images each eye receives are known as _____.

- a. retinal disparity
- b. convergence
- c. binocular inversion
- d. stereoscopic vision

Answer a % correct 55 a= 55 b= 11 c= 25 d= 8 r = .28

151. Because the eyes are separated by several centimeters, each eye's view of an object is different from the other's. This is called _____ disparity.

- a. monocular
- b. ocular
- c. visual
- d. binocular

Answer d % correct 46 a= 4 b= 9 c= 41 d= 46 r = .24

152. Which of the following produces binocular disparity?

- a. the eyes being a few centimeters apart
- b. right-eye dominance in most people
- c. astigmatism
- d. the slightly elliptical shape of the eye

Answer a % correct 72 a= 72 b= 7 c= 11 d= 9 r = .42

153. When we look at objects fairly close to us, our eyes tend to turn slightly inward toward each other. This process is called _____.

- a. retinal disparity
- b. convergence
- c. binocular inversion
- d. being cross-eyed

Answer b % correct 79 a= 11 b= 79 c= 8 d= 2 r = .51

154. When objects are 60 or 70 feet away, _____ does not occur.

- a. convergence
- b. stereoscopic vision
- c. motion parallax
- d. retinal disparity

Answer a % correct 66 a= 66 b= 13 c= 3 d= 17 r = .35

155. A person who is blind in one eye can use all of the visual cues except _____.

- a. aerial perspective
- b. convergence
- c. shadowing
- d. motion parallax

Answer b % correct 85 a= 8 b= 85 c= 2 d= 5 r = .31

156. Which type of information helps with depth perception?

- a. revision
- b. dispartic
- c. binocular
- d. all of the above

Answer c % correct 70 a= 2 b= 5 c= 70 d= 23 r = .54

156. Since our eyes are a few inches apart, we get a slightly different view from each eye. This is known as:

- a. binocular disparity.
- b. visual reference.
- c. ocular disparity.
- d. kinetic revision.

Answer a % correct 67 a= 67 b= 7 c= 20 d= 6 r = .31

Visual Illusions

157. Even though a motion picture actually consists of a series of still frames, we perceive them conveying continuous movement. This is an example of _____.

- a. autokinetic illusion
- b. stroboscopic motion
- c. induced movement
- d. the phi phenomenon

Answer b % correct 62 a= 21 b= 62 c= 7 d= 10 r = .20

158. Many so-called UFOs may actually be caused by _____.

- a. the Muller-Lyer illusion
- b. the Ponzo illusion
- c. faulty monocular cues
- d. the autokinetic effect

Answer d % correct 92 a= 4 b= 3 c= 2 d= 92 r = .36

159. The autokinetic effect is:

- a. the tendency for a stationary object viewed against a dark background to look as if it is moving.
- b. the tendency to perceive that a moving light viewed against a dark background to look as if it is stationary.
- c. the tendency to perceive that a stationary object against a dark background is closer than it actually is.
- d. the tendency to perceive that a stationary object against a dark background is farther away than it actually is.

Answer a % correct 76 a= 76 b= 11 c= 10 d= 3 r = .39

160. The tendency for a stationary light viewed against darkness to look as though it's moving is called:

- a. the synthesizing process.
- b. the autokinetic effect.
- c. the kinetic depth effect.
- d. motion parallax.

Answer b % correct 76 a= 1 b= 76 c= 8 d= 15 r = .50

161. An illusion due to misleading cues in stimuli which cause us to create perceptions that are inaccurate or impossible is called a(n) _____ illusion.

- a. perceptual
- b. induced
- c. physical
- d. stroboscopic

Answer a % correct 67 a= 67 b= 17 c= 6 d= r = .33

162. The saying, "Birds of a feather flock together" is most closely aligned with the _____ principle of perceptual organization.

- a. closure
- b. similarity
- c. symmetry
- d. continuity

Answer b % correct 80 a= 3 b= 80 c= 4 d= 13 r = .22