Name:_____ Class:_____ Date:_____

Chapter 4 - Sensation and Perception

1. Which of the following reflects a distinction between the process of sensation and the process of perception?
   a. Sensation is not necessary for perception, but perception is necessary for sensation.
   b. Sensation occurs at the level of the brain, while perception occurs at the level of the mind.
   c. Sensation reflects the proximal stimulus, while perception reflects the distal stimulus.
   d. Sensation occurs at the level of the sense organs, while perception occurs at the level of the brain.

   ANSWER: d

2. Light has entered Jeff's eye and has stimulated receptors there. Which of the following terms describes this process?
   a. detection
   b. perception
   c. proximal stimulation
   d. sensation

   ANSWER: d

3. A neural signal from Mary's taste bud has travelled to her cortex, and she experiences enjoyment of a sweet flavour. Which of the following terms describes this process?
   a. sensation
   b. distal stimulation
   c. detection
   d. perception

   ANSWER: d

4. What is your absolute threshold?
   a. the point at which you detect any portion of a stimulus
   b. the point at which you detect a stimulus that registers on sensory memory
   c. the point at which you detect any stimulus set point
   d. the point at which you detect a stimulus about half of the time

   ANSWER: d

5. Werner was having his hearing tested, and a number of the tones that were presented were so faint he was not able to detect them. What can you say about the faint sounds?
   a. They are below Werner's absolute threshold for sound.
   b. They cannot create a just noticeable difference.
   c. They cause weak action potentials.
   d. They fall below Werner's adaptation level for sound.

   ANSWER: a

6. Juanita was drinking some warm punch, and she thought she could just detect a faint taste of nutmeg in the punch. When she took another sip, the taste wasn't there. On the third sip, she could just make out the taste of nutmeg again. What could you say about the taste of nutmeg in this situation?
   a. It falls just below her taste constancy level.
   b. It produces a proximal rather than distal stimulus.
   c. It is just at her absolute threshold for taste.
   d. It produces a just noticeable difference.

   ANSWER: c

7. Giovanni was watching the night sky on a clear evening in November. He noticed that sometimes when he looked directly overhead he could detect a very faint star. A few minutes later, it seemed that the star had disappeared and then it "appeared" again. How would you describe the light from the star in this case?
   a. It produces a just noticeable difference.
   b. It produces a distal stimulus.
   c. It falls just below Giovanni's level for perceptual invariance.
   d. It is just at Giovanni's absolute threshold for light.

   ANSWER: d

8. Which of the following is being measured if a subject is presented with a series of light bulb pairs of different wattages and is asked whether the members of each pair differ in brightness?
   a. subject's visual acuity
   b. subject's absolute threshold for brightness
   c. subject's just noticeable difference for brightness
   d. physical intensity difference between the two lights

   ANSWER: c

9. If a 100 Hz tone had to be increased to 101 Hz for a subject to just notice the difference, what would you change a 1000 Hz tone to in order for that subject to notice the difference?
   a. 1010 Hz
   b. 1050 Hz
   c. 1100 Hz
   d. 1200 Hz

   ANSWER: a

10. Evelyn turned up the thermostat from 68 degrees to 70 degrees; however, she doesn't think it feels any warmer and she wants to turn it up even higher. Her roommate thinks that it is now too hot, and she wants to turn the thermostat back down. How does Evelyn's just noticeable difference compare to her roommate's?
    a. Evelyn's is smaller.
    b. Evelyn's is lower.
    c. Evelyn's is larger.
    d. Evelyn's is higher.

    ANSWER: c

11. Raul is making potato soup. His roommate tastes it and tells Raul it is great, but Raul thinks it needs more salt. He adds just a little salt, but doesn't think that he has added enough because he doesn't detect a difference. However, his roommate tastes it again and tells Raul that the soup is now perfect, with just the right amount of salt. Which of the following is most accurate?
    a. Raul's roommate has a higher absolute threshold than does Raul.
    b. Raul has more taste cells on the back of his tongue than does his roommate.
    c. Raul is a nontaster.
    d. Raul's roommate can detect a smaller just noticeable difference than Raul can.

    ANSWER: d

12. When Celeste was playing her stereo at 40 decibels and she turned it up to 42 decibels, she could notice that it was louder. If Celeste's stereo were playing at 80 decibels, what should her just noticeable difference be?
    a. 1 decibel, half as much as it was at 40 decibels
    b. 2 decibels, the same as it was at 40 decibels
    c. 3 decibels, 50 percent more than it was at 40 decibels
    d. 4 decibels, twice as much as it was at 40 decibels

    ANSWER: d

13. You have a lamp with a three-way light bulb. You can use the light at 50 watts, 100 watts, or 150 watts. When you change between settings, which of the following changes will be perceived as a larger increase in brightness?
    a. from off to 50 watts
    b. from 50 to 100 watts
    c. from 100 to 150 watts
    d. Each change will be perceived as an equivalent difference.

    ANSWER: a

14. In the signal-detection method, what do we call it when a subject detects a stimulus when no stimulus is actually present?
    a. hit
    b. correct rejection
    c. miss
    d. false alarm

    ANSWER: d

15. Which type of signal-detection error becomes more likely when someone is not expecting the stimulus?
    a. correct rejection
    b. miss
    c. accurate hit
    d. false alarm

    ANSWER: b

16. In signal detection, which type of error is more likely if you are expecting the stimulus to occur?
    a. false alarm
    b. miss
    c. correct rejection
    d. noise hit

    ANSWER: a

17. Jerry, a nuclear operator, must monitor 50 different gauges that keep track of various aspects of the nuclear reactor. Which of the following theories provides the most specific predictions for Jerry's likelihood of detecting any changes or problems?
    a. signal-detection
    b. Fechner's law
    c. *Pragnanz*
    d. Weber's law

    ANSWER: a

18. Joan was sitting talking with some friends when she suddenly left the room to check on her baby. She was sure she heard little Emily cry out, but when she checked, Emily was sleeping peacefully. What would you call Joan's response based on signal-detection theory?
    a. hit
    b. false alarm
    c. correct rejection
    d. miss

    ANSWER: b

19. Dalton was sitting in the hallway outside his chemistry class. Some students said they thought they could smell smoke, but Dalton didn't smell anything. When they all checked the lab to see if there were any problems, everything was fine and nothing was burning. What would you call Dalton's response based on signal-detection theory?
    a. false alarm
    b. low threshold
    c. high threshold
    d. correct rejection

    ANSWER: d

20. Your criterion for "hearing" mysterious noises at night may change after a rash of burglaries in your neighbourhood. Which of the following best explains this change?
    a. Fechner's law
    b. signal-detection theory
    c. Weber's law
    d. sensory adaptation

    ANSWER: b

21. What does "subliminal" mean?
    a. deceptive
    b. below threshold
    c. barely perceptible
    d. superimposed

    ANSWER: b

22. Which of the following statements about subliminal perception is most accurate?
    a. Subliminal perception is possible only if sensory adaptation has taken place.
    b. Although subliminal perception was once dismissed by scientists as preposterous, recent evidence suggests it has some effects on behaviour.
    c. Scientists have conclusively demonstrated that perception simply cannot take place without conscious awareness.
    d. Recent research suggests that subliminal messages can be quite persuasive in convincing us to buy products we don't want.

    ANSWER: b

23. What have researchers typically found when they have attempted to demonstrate subliminal perception effects in the real world?
    a. Such effects are substantial and a potential cause for public concern.
    b. People are much more likely to be influenced by "positive" subliminal stimuli (e.g., self-help tapes) than "negative" ones (e.g., subliminal advertising).
    c. People are much more likely to be influenced by "negative" subliminal stimuli than "positive" ones.
    d. Such effects are so weak as to be of little, if any, practical importance.

    ANSWER: d

24. What will eventually occur if you stare at an unchanging image for a long time?
    a. You will experience sensory adaptation.
    b. You will have a higher absolute threshold.
    c. You will perceive a just noticeable difference.
    d. You will experience sensory overload.

    ANSWER: a

25. What is sensory adaptation?
    a. a cause of false alarms in signal detection
    b. increase in sensitivity after prolonged stimulation
    c. decline in sensitivity after prolonged stimulation
    d. weakening of a neurotransmitter

    ANSWER: c

26. You enter a room and notice a distinctive new odour. After a bit of time, you no longer notice the odour. What phenomenon does this illustrate?
    a. sensory adaptation
    b. *Pragnanz*
    c. progressive desensitization
    d. false alarm

    ANSWER: a

27. Yaniv has been working for the past two hours, and the hum of his laptop computer that he found so annoying when he started no longer bothers him. Which of the following processes is illustrated by the change in Yaniv's sensitivity to the laptop noise?
    a. adjusting just noticeable differences
    b. sensory adaptation
    c. perceptual assimilation
    d. perceptual invariance

    ANSWER: b

28. Sonja put on a new watch this morning and found it uncomfortable because it was so much heavier than her old watch. However, by noon, Sonja has forgotten that she is even wearing the watch. Which of the following processes is illustrated by the change in Sonja's sensitivity to the pressure of the watch?
    a. perceptual assimilation
    b. signal detection
    c. adjusting just noticeable differences
    d. sensory adaptation

    ANSWER: d

29. Which of the following CANNOT be explained by sensory adaptation?
    a. feeling comfortable in a cold swimming pool after being in for a few minutes
    b. getting used to the smell of the perfume you are wearing
    c. getting used to the touch of your clothes on your skin
    d. feeling no sensation in a foot that has lost circulation

    ANSWER: d

30. What aspect of perception is affected by the wavelength of light?
    a. saturation
    b. light purity
    c. brightness
    d. colour

    ANSWER: d

31. What affects our perception of the brightness of a colour?
    a. saturation of light waves
    b. purity of light waves
    c. amplitude of light waves
    d. wavelength of light waves

    ANSWER: c

32. Jose is wearing a blue shirt, and Evan is wearing a red shirt. What is the difference between the two shirts, in terms of light waves?
    a. Jose's reflects higher amplitude light waves than Evan's.
    b. Jose's reflects shorter light waves than Evan's.
    c. Jose's reflects longer light waves than Evan's.
    d. Jose's reflects lower amplitude light waves than Evan's.

    ANSWER: b

33. What aspect of visual perception is responsive to differences in the amplitude of light waves?
    a. colour
    b. purity
    c. saturation
    d. brightness

    ANSWER: d

34. What aspect of visual perception will change if you change the purity of the light waves?
    a. saturation
    b. colour constancies
    c. hue
    d. brightness

    ANSWER: a

35. If your lens is very round, which of the following will you see best?
    a. close objects
    b. distant objects
    c. moving objects
    d. brightly coloured objects

    ANSWER: a

36. As people age, the lens of the eye loses its ability to accommodate, and it tends to remain flat instead of becoming fat and round. What does this suggest about the effects of aging on vision?
    a. We become less likely to detect differences in light purity.
    b. We become more likely to detect differences in brightness and hue.
    c. We lose the ability to focus on objects that are close.
    d. We lose the ability to focus on objects in the distance.

    ANSWER: c

37. What is the structure that controls the size of the pupil?
    a. lens
    b. vitreous humour
    c. cornea
    d. iris

    ANSWER: d

38. What changes in size, in order to regulate the amount of light that enters the eye?
    a. cornea
    b. pupil
    c. retina
    d. lens

    ANSWER: b

39. What happens to the pupil of the eye in bright sunlight?
    a. It constricts.
    b. It flattens.
    c. It dilates.
    d. It closes.

    ANSWER: a

40. Isaiah is having his eyes checked. The doctor has put drops in Isaiah's eyes that will cause the pupils to open wide. What will happen to Isaiah's vision as the drops begin to work?
    a. His vision will start to become quite blurry.
    b. He will lose some of his colour vision.
    c. His vision will become extremely sharp and clear.
    d. Colours will appear to be "super" saturated.

    ANSWER: a

41. What happens to the pupil of the eye in dim light?
    a. It is dilated, producing a sharper image.
    b. It is dilated, producing an image that is not as sharp.
    c. It is constricted, producing an image that is not as sharp.
    d. It is constricted, producing a sharper image.

    ANSWER: b

42. Which of the following processes compensates for sensory adaptation?
    a. transduction
    b. saccades
    c. dilation
    d. lens accommodation

    ANSWER: b

43. Where is the optic disk?
    a. where the visual fields from both eyes merge
    b. where the optic nerve exits the retina
    c. immediately in front of the lens
    d. where most of the rod and cones are located

    ANSWER: b

44. What is the blind spot in the eye?
    a. where the optic nerve exits the back of the eye
    b. the point at which ganglion cells synapse with bipolar cells
    c. the area where only cones are present
    d. where photoreceptor cells do not "bleach"

    ANSWER: a

45. Petra has vision problems because of a syndrome that causes her cones to be faulty. Her rods function normally. Which of the following aspects of Petra's vision is likely to be deficient?
    a. colour vision
    b. depth perception
    c. vision in low illumination
    d. peripheral vision

    ANSWER: a

46. Imagine that biologists have discovered an animal that has eyes very similar to human eyes, but that the only receptor cells in the retina are rods; there are no cones. What would you expect about this animal's vision, based on what is known about human vision?
    a. It would be able to detect extremely fine details.
    b. It would have poor peripheral vision.
    c. It would have poor vision in low illumination.
    d. It would have no colour vision.

    ANSWER: d

47. Imagine that biologists have discovered an animal that has eyes very similar to human eyes, but that the only receptor cells in the retina are cones; there are no rods. What would you expect about this animal's vision, based on what is known about human vision?
    a. It would have poor peripheral vision.
    b. It would have poor visual acuity.
    c. It would have excellent vision in dim light.
    d. It could not see in colour.

    ANSWER: a

48. Devin has contracted a very rare eye disease that has caused damage to his rods, but for the most part, his cones have not been affected. Which of the following aspects of Devin's vision is likely to be deficient?
    a. vision in bright illumination
    b. peripheral vision
    c. colour vision
    d. detecting differences in wavelengths of light

    ANSWER: b

49. Which of the following techniques would allow you to maximize visual acuity at night?
    a. Close one eye.
    b. Blink your eyes several times to hasten dark adaptation.
    c. Look slightly above or below the object you wish to see.
    d. Look directly at the object you wish to see.

    ANSWER: c

50. Fifteen minutes after Zigfried left the brightly lit hallway and entered the dark passageway, what would you expect about his dark adaptation?
    a. It is still taking place in both his rods and his cones.
    b. It is complete in his rods, but still taking place in his cones.
    c. It is complete in both his rods and cones.
    d. It is complete in his cones, but still taking place in his rods.

    ANSWER: d

51. What does the receptive field of a visual cell refer to?
    a. the portion of visual cortex that receives information from that cell
    b. a cell's degree of sensitivity or receptivity
    c. a range of wavelengths of light the cell reacts to
    d. an area of rods and cones that cause the visual cell to fire

    ANSWER: d

52. When light hits the centre-surround of a receptive field, which of the following will be stimulated?
    a. the inhibitory synapse to the visual cell
    b. the excitatory synapse to the visual cell
    c. the optic nerve
    d. the optic disc

    ANSWER: a

53. When light hits the centre of a receptive field, but does not hit the centre-surround, which of the following is most likely to occur?
    a. The associated visual cell will fire.
    b. The associated visual cell will be inhibited.
    c. The nearby visual cells will be stimulated.
    d. The optic nerve will be inhibited.

    ANSWER: a

54. When light hits the centre-surround of a receptive field, but does not hit the centre, which of the following is most likely to occur?
    a. The associated visual cell will fire.
    b. The associated visual cell will be inhibited.
    c. The nearby visual cells will be inhibited.
    d. The optic nerve will fire.

    ANSWER: b

55. What is the optic chiasm?
    a. the portion of the lateral geniculate nucleus that is responsible for coordination of sensory input
    b. the point at which the optic nerves cross over one another before projecting to the occipital lobe
    c. the portion of the visual cortex responsible for feature detection
    d. the gap between the right occipital lobe and the left occipital lobe

    ANSWER: b

56. If the pathway through your superior colliculus were not functioning correctly, what would be difficult for you to do?
    a. perceiving depth
    b. integrating visual and auditory information
    c. distinguishing colours
    d. detecting differences in texture

    ANSWER: b

57. In which of the following lobes would you find the primary visual cortex?
    a. frontal
    b. occipital
    c. temporal
    d. parietal

    ANSWER: b

58. Through which of the following brain areas do visual signals travel just before reaching primary visual cortex?
    a. frontal lobes
    b. optic disc
    c. thalamus
    d. superior colliculus

    ANSWER: c

59. Which of the following depicts an accurate pathway for neural signals leaving the retina?
    a. optic chiasm, optic nerve, occipital lobe, lateral geniculate nucleus
    b. optic nerve, optic chiasm, thalamus, primary visual cortex
    c. optic nerve, lateral geniculate nucleus, optic chiasm, occipital lobe
    d. optic chiasm, medial geniculate nucleus, primary visual cortex, thalamus

    ANSWER: b

60. What are the cells in the visual cortex that respond selectively to specific details of complex stimuli?
    a. ventral cells
    b. centre-surround detectors
    c. feature detectors
    d. ganglion cells

    ANSWER: c

61. What are the cells in the visual cortex that respond to a line of the correct width, oriented at the correct angle, and located in the correct position in its receptive field?
    a. ganglion cells
    b. binary cells
    c. complex cells
    d. simple cells

    ANSWER: d

62. What do complex cells in the visual cortex respond to?
    a. specific widths and orientation of lines anywhere in their receptive field
    b. different colours in a specific spectrum
    c. figure-ground disparity in the visual field
    d. discrepancies between the centre and centre-surround in a receptive field

    ANSWER: a

63. A microelectrode is recording the activity from a single cell in the visual cortex of a cat. The cell begins to fire rapidly when a line is presented at a 45-degree angle directly in front of the cat, but stops firing when the line is shifted to a position that is off to the left. What type of cell is likely being monitored in this case?
    a. complex cell
    b. simple cell
    c. cell in the superior colliculus
    d. ganglion cell

    ANSWER: b

64. A microelectrode is recording the activity from a single cell in the visual cortex of a cat. The cell begins to fire rapidly when a vertical line sweeps across the visual field to the left, but stops firing when the same line sweeps back across the visual field to the right. What type of cell is likely being monitored in this case?
    a. cell in the parvocellular channel
    b. simple cell
    c. ganglion cell
    d. complex cell

    ANSWER: d

65. After visual input has been processed in the primary visual cortex, signals are processed further along a number of pathways. Which of the following types of visual information would be processed in the temporal lobe, along the ventral stream?
    a. movement
    b. brightness and contours
    c. faces
    d. complexity and contrast

    ANSWER: c

66. After visual input has been processed in the primary visual cortex, signals are processed further along a number of pathways. Where is information about object recognition processed?
    a. temporal lobes
    b. occipital lobes
    c. frontal lobes
    d. parietal lobes

    ANSWER: a

67. Where does the ventral stream project to after leaving the primary visual cortex?
    a. basal forebrain
    b. cerebellum
    c. temporal lobes
    d. parietal lobes

    ANSWER: c

68. Charley has visual agnosia and is unable to recognize common, everyday objects. Damage to which component of the visual system does this condition most likely result from?
    a. ventral stream
    b. feature detectors
    c. superior colliculus
    d. lateral geniculate nucleus

    ANSWER: a

69. Which of the following would you be unable to recognize if you had a condition known as prosopagnosia?
    a. lines with a 45-degree orientation
    b. colours
    c. movement
    d. faces

    ANSWER: d

70. In which of the following lobes would you find that brain damage leads to visual agnosia?
    a. frontal
    b. occipital
    c. temporal
    d. parietal

    ANSWER: c

71. You see a delicious-looking doughnut sitting on the counter in front of you, and you guide your hand toward the doughnut and pop it into your mouth. What do we call the second visual process for guiding your hand?
    a. Hubel vision
    b. conscious vision
    c. subcortical vision
    d. vision for action

    ANSWER: d

72. In the case study of "DF," a woman experienced brain damage as a result of carbon-monoxide poisoning and lost the ability to recognize the forms of objects. What type of deficit did "DF" have?
    a. amnesia
    b. failure of vision for action
    c. dorsal stream damage
    d. agnosia

    ANSWER: d

73. Which of the following activities would be difficult for you to do if you sustained damage to your dorsal stream?
    a. say the name of an item that you see
    b. choose colours that match
    c. recognize your best friend
    d. reach out to pick up a cup

    ANSWER: d

74. Deanne can see and recognize objects, but she seems to be unable to reach out and grasp them appropriately. She often knocks over cups and drops pencils because she doesn't orient her hand to grip them. If this problem is related to brain damage to the perceptual system, which of the following areas is most likely to be damaged?
    a. ventral stream
    b. dorsal stream
    c. primary visual cortex
    d. superior colliculus

    ANSWER: b

75. While finger painting, Imran mixed yellow paint and blue paint and ended up with green. Which mixing method did Imran use?
    a. subtractive colour mixing
    b. trichromatic mixing
    c. additive colour mixing
    d. multiplicative colour mixing

    ANSWER: a

76. If you were to shine lights of different colours onto a surface, so that the lights overlap, what type of colour mixing are you using?
    a. subtractive
    b. opponent processes
    c. additive
    d. saturation

    ANSWER: c

77. If you project a red, a green, and a blue light into space, what colour will be perceived at the point where the three lights cross?
    a. grey
    b. ultraviolet
    c. black
    d. white

    ANSWER: d

78. If you mix red, green, and blue paint, what colour will you get?
    a. orange
    b. white
    c. purple
    d. black

    ANSWER: d

79. At the musical he attended over the weekend, Andrew noticed that whenever the red and green spotlights overlapped, they seemed to change to a yellow spotlight. Which principle explains this perception?
    a. complex feature detection
    b. subtractive colour mixing
    c. additive colour mixing
    d. opponent processing of colours

    ANSWER: c

80. Television sets are able to re-create the entire visible spectrum by mixing three primary colours of light. Which theory of human colour vision is similar to this mechanism?
    a. opponent process
    b. saturation
    c. trichromatic
    d. complementary colour

    ANSWER: c

81. What differs in the visual perception of a human dichromat and a human trichromat?
    a. colour vision
    b. visual acuity
    c. dark and light adaptation
    d. peripheral vision

    ANSWER: a

82. Hering's opponent process theory suggests that receptors are linked antagonistically in pairs. What are his opposed pairs?
    a. red-yellow; blue-green; black-white
    b. yellow-green; red-blue; black-white
    c. red-green; yellow-blue; black-white
    d. red-black; yellow-white; green-blue

    ANSWER: c

83. Eli has been wearing green welding goggles for the past 30 minutes. Based on the opponent process theory of colour vision, what colour will white objects appear to be for a brief time after Eli takes off the green goggles?
    a. blue
    b. yellow
    c. orange
    d. red

    ANSWER: d

84. According to one theory of colour vision, colours are signalled in pairs by neurons that fire faster to one colour and slower to another colour. What is this theory called?
    a. trichromatic theory
    b. dichromatic theory
    c. opponent process theory
    d. complementary colour theory

    ANSWER: c

85. Denise was momentarily blinded when paparazzi snapped her picture using a blue flash. Following the flash, she saw spots for several minutes. What colour were the spots, based on the opponent process theory of colour vision?
    a. yellow
    b. blue
    c. red
    d. green

    ANSWER: a

86. After having your picture taken with a yellow flash, you momentarily see blue spots floating before your eyes. Which process best explains this phenomenon?
    a. additive colour mixing
    b. trichromatic theory
    c. opponent process theory
    d. subtractive colour mixing

    ANSWER: c

87. Which theory of colour vision is supported by the action of the lateral geniculate nucleus?
    a. Helmholtz'
    b. trichromatic
    c. opponent process
    d. Weber's

    ANSWER: c

88. Which of the following is the best description of the current view of how colour is coded in the visual system?
    a. It starts as an opponent process and then switches to a trichromatic process.
    b. It starts with rods and then switches to cones.
    c. It begins with cones and then switches to rods.
    d. It begins with a trichromatic process and then switches to an opponent process.

    ANSWER: d

89. Three groups of students completed the same test, but each group's tests had a different coloured cover. Based on research results by Andrew Elliot and his colleagues, which group should have the lowest average score on the test?
    a. the group with black tests
    b. the group with red tests
    c. the group with green tests
    d. the group with white tests

    ANSWER: b

90. Which of the following concepts helps to explain why three people could look at the same sketch and report seeing three different things?
    a. sensory readiness
    b. perceptual set
    c. cognitive interpretation
    d. stimulus ambiguity

    ANSWER: b

91. What do we mean when we say that perception is influenced by a perceptual set?
    a. The brain is only capable of perceiving so many things.
    b. People often perceive what they expect to perceive.
    c. Perception is based on detection of specific features.
    d. Perception is less about the person and more about the situation.

    ANSWER: b

92. Mike and Sandy were walking down the street, and Mike was telling Sandy a story about a party he went to. As they were walking, a car full of clowns drove past and waved at them. Sandy waved back. Later, Mike reported truthfully that he had never seen the clowns and did not notice that Sandy waved at them. Which of the following could explain this apparent lapse in perception?
    a. inattentional blindness
    b. bottom-up processing
    c. hyperfocus
    d. phi phenomenon

    ANSWER: a

93. Feature analysis assumes that we progress from individual elements to the whole in the formation of our perceptions. Which of the following processes describes feature analysis?
    a. bottom-up
    b. perceptual set
    c. subjective processing
    d. top-down

    ANSWER: a

94. Vanessa describes a new melody that she heard at a concert by telling you each of the individual notes in the order that they were played. In providing this type of description, which type of processing does Vanessa appear to use?
    a. opponent process
    b. bottom-up
    c. figure-ground
    d. top-down

    ANSWER: b

95. Sima was listening to a tape recording of a famous speech that was being played backward. She just heard gibberish until a classmate told her that the phrase "meet me in St. Louis" was clearly spoken. The tape was rewound and as Sima listened she clearly heard the phrase this time. Which of the following models of perception is illustrated by Sima's ability to detect the phrase the second time through the tape?
    a. Gestalt
    b. bottom-up processing
    c. top-down processing
    d. opponent process

    ANSWER: c

96. Which type of processing is most important for the ability to rapidly process words that you are reading?
    a. lateral
    b. bottom-up
    c. top-down
    d. feature analysis

    ANSWER: c

97. Tracy has terrible handwriting, and many of her individual characters are tough to tell apart, but her roommate is able to read her notes just fine. Which of the following types of processing allows Tracy's roommate to read the notes?
    a. feature analysis
    b. opponent processing
    c. bottom-up processing
    d. top-down processing

    ANSWER: d

98. Which of the following is an example of the phi phenomenon?
    a. mixing of coloured lights to produce different colours
    b. flashing lights that produce the illusion of movement
    c. drawing a two-dimensional image that shows depth
    d. seeing a reversible figure differently after priming

    ANSWER: b

99. The lights around the movie marquee flashed on and off in succession. However, Jerome did not perceive them as separate lights flashing, but instead saw a continuous band of light moving around the edge of the marquee. What is this type of perception known as?
    a. phi phenomenon
    b. perceptual set
    c. feature detection
    d. bottom-up processing

    ANSWER: a

100. Shelby created an animated scene using her computer. She drew a frog as he started to jump, and then drew the frog landing. The computer created 10 pictures between these two points, each of which adjusted the frog's position very slightly. When the entire sequence of 12 pictures is displayed in rapid succession, the frog appears to hop smoothly. Which of the following leads to this perception of animation?
    a. phi phenomenon
    b. perceptual set
    c. bottom-up processing
    d. feature detection

    ANSWER: a

101. Why is it difficult to see a chameleon that has blended in with its background?
    a. Perceptually, the chameleon and the background share a common fate.
    b. The illusion of relative size leads us to think that the chameleon has disappeared.
    c. We cannot easily distinguish between figure and ground in this case.
    d. The perceptual principle of shape constancy prevents us from seeing the chameleon.

    ANSWER: c

102. Zachary is looking at a reversible figure that first appears to be a vase and then appears to be two faces. His perception of the figure keeps switching between these two interpretations. What causes the switch in perception?
    a. The Gestalt principle of simplicity doesn't work for reversible figures.
    b. The figure-ground distinction in reversible figures is often ambiguous.
    c. The Gestalt principles of proximity and closure are both at work in reversible figures.
    d. Reversible figures cause people to experience the phi phenomenon.

    ANSWER: b

103. What becomes inverted in paintings or drawings that lead to ambiguous interpretations?
    a. open processing and closed processing
    b. figure and ground
    c. sensation and perception
    d. top and bottom

    ANSWER: b

104. What does the Gestalt principle of proximity state?
    a. Figure and ground can be ambiguous.
    b. Objects nearer to each other are seen as forming a unit.
    c. Bottom-up processing is more likely with close items.
    d. Centre-surround cells that are closer fire more often.

    ANSWER: b

105. Natalie looked out her apartment window at the traffic jam below. There was very little space between the front of one car and the rear of the next, but there were wide spaces between the side of one car and the side of another car. Which of the following Gestalt principles explains why Natalie saw several rows of cars, rather than a cluster of cars?
    a. proximity
    b. simplicity
    c. similarity
    d. closure

    ANSWER: a

106. During the halftime show of the football game, the cheerleaders did a routine where they used red and blue pompoms. At one point, they held all of their pompoms in a pattern so that the blue ones formed the shape of the team's logo. Which Gestalt principle is illustrated in this example?
    a. closure
    b. proximity
    c. similarity
    d. simplicity

    ANSWER: c

107. Because of which Gestalt principle do we often perceive a series of dots on a printed form as a "solid" line?
    a. constancy
    b. closure
    c. symmetry
    d. similarity

    ANSWER: b

108. When Justin looked up at the night sky, he perceived the three stars that make up the belt in the constellation Orion as a line, rather than as individual stars. Which Gestalt principle does Justin's perception of the night sky illustrate?
    a. figure-ground
    b. similarity
    c. closure
    d. proximity

    ANSWER: c

109. Christina was skiing down a hill when the trail broke into two separate trails. One trail turned off at sharp angle and looked to Christina like a new trail; the second trail appeared to be the same trail that she had been on. Which Gestalt principle is illustrated by this example?
    a. continuity
    b. similarity
    c. proximity
    d. commonality

    ANSWER: a

110. You are looking at a book. What type of stimulus is the book, from a perceptual perspective?
    a. sensory
    b. Gestalt
    c. distal
    d. proximal

    ANSWER: c

111. You interpret a trapezoid shape projected on your retina as a rectangular book. What have you just formulated?
    a. perceptual set
    b. psychophysical law
    c. perceptual hypothesis
    d. Gestalt principle

    ANSWER: c

112. The disparity between the images on the left and right retinas is used for depth perception. If there is greater disparity for the left and right images of your coffee cup, and less disparity for the left and right images of your pen, then which of the following is true?
    a. Your cup is closer to your right eye.
    b. Your cup is closer to your left eye.
    c. Your cup is closer than your pen.
    d. Your pen is closer than your cup.

    ANSWER: c

113. Stacia has lost all of her vision in her left eye. What will happen to Stacia's perceptual abilities?
    a. She will lose her ability to perceive colours accurately.
    b. She will be more vulnerable to perceptual illusions that incorporate differences in relative line length.
    c. She will no longer be able to utilize convergence as a perceptual cue.
    d. She will be unable to perceive depth.

    ANSWER: c

114. Which depth cue relies on information about the position of your eyes?
    a. relative size
    b. binocular disparity
    c. accommodation
    d. convergence

    ANSWER: d

115. What increases as you keep focusing on your finger as it moves closer to your face?
    a. depth perception
    b. acuity
    c. convergence
    d. motion parallax

    ANSWER: c

116. As Briana drove down the highway, the pickets of the fences moved past her in a blur, but the mountains in the distance didn't appear to move at all. What was Briana experiencing?
    a. binocular cue for depth called retinal disparity
    b. monocular cue for depth called motion parallax
    c. binocular cue for depth called convergence
    d. pictorial cue for depth called texture gradient

    ANSWER: b

117. Tran was painting a picture of a jet on a runway; however, in his painting, the sides of the runway are parallel to each other. His picture seems to lack depth. Which monocular depth cue has Tran failed to make use of?
    a. linear perspective
    b. convergence
    c. motion parallax
    d. height in plane

    ANSWER: a

118. The sand at Zane's feet appeared coarse, and he could see the individual grains of sand. However, the sand down the beach appeared to blur together. Which depth cue is most prominent in this example?
    a. relative size
    b. interposition
    c. texture gradient
    d. light and shadow

    ANSWER: c

119. What is interposition?
    a. a lens's ability to change shape and focus light directly on the retina
    b. the processing of auditory information at the cochlear level
    c. an environmental depth cue in which closer objects overlap objects farther away
    d. the relationship between bipolar and ganglion cells

    ANSWER: c

120. Gabriella was looking for shelter from the sudden cloudburst, and at first she had difficulty judging whether the old barn or the farmhouse was closer. When she noticed that the barn partially obscured the corner of the house, she headed for the barn. Which depth cue did Gabriella use?
    a. linear perspective
    b. texture gradient
    c. relative size
    d. interposition

    ANSWER: d

121. Images that occupy more space on your retina are seen as nearer, relative to images that occupy less space. What is this depth cue called?
    a. interposition
    b. retinal disparity
    c. relative size
    d. accommodation

    ANSWER: c

122. Ashley is trying to create a small model village on the mantle of her fireplace. She bought three-inch-high figures to put at the front of the mantle and smaller figures to put near the back that will appear to be very far away. What depth cue is Ashley using?
    a. interposition
    b. texture gradient
    c. convergence
    d. relative size

    ANSWER: d

123. Which of the following is implied by the phenomenon of perceptual constancy?
    a. Movement of an object can disrupt our ability to perceive it.
    b. Two objects may be perceived as being the same even though they produce different retinal images.
    c. We have an easier time remembering items that have remained constant, compared to objects that have changed.
    d. Our ability to perceive changes in an object is inhibited if we have been exposed to that object for an extended period of time.

    ANSWER: b

124. As I walk closer to my friend, she perceives that I am the same person even though the image on her retina changes as I move. Which of the following terms is used for this perceptual ability?
    a. object permanence
    b. perceptual constancy
    c. accommodation
    d. binocular depth perception

    ANSWER: b

125. Three-year-old Keeghan was flying in a plane for the first time. As the plane descended for its landing, Keeghan became very excited because he saw all the buildings and cars get bigger and bigger. He asked his father how big the houses would grow. Which aspect of perception FAILED in this example?
    a. accommodation
    b. perceptual constancy
    c. linear perspective
    d. binocular depth cues

    ANSWER: b

126. Which visual illusion accounts for the fact that the corner of a building thrust toward the viewer looks shorter than an inside corner thrust away from the viewer?
    a. Ponzo illusion
    b. illusion of relative size
    c. Müller-Lyer illusion
    d. horizontal-vertical illusion

    ANSWER: c

127. In the Ames room, people are seen to get smaller or larger as they move about. What does this demonstrate about our perception?
    a. The proximal stimulus is unrelated to the distal stimulus.
    b. The actual distal stimuli are the primary determinants of perception.
    c. Perception depends on the assumptions we make about stimuli.
    d. Bottom-up processing controls most perception.

    ANSWER: c

128. What is the moon illusion?
    a. We perceive the moon to be perfectly round, when it is really elliptical.
    b. We perceive the moon to be dimmer in some seasons than in others.
    c. We perceive the moon to be larger on the horizon than overhead.
    d. We think we see the moon when in fact it is not there.

    ANSWER: c

129. Which of the following is true of optical illusions?
    a. They are influenced by our experiences.
    b. They are perceived only if your vision is compromised.
    c. Once you understand the "trick," then you won't see the illusion anymore.
    d. They are more pronounced in children.

    ANSWER: a

130. Which perception is associated with the amplitude of a sound wave?
    a. loudness
    b. richness
    c. timbre
    d. tonal quality

    ANSWER: a

131. What aspect of the sound wave influences the perception of timbre?
    a. panache
    b. amplitude
    c. pitch
    d. purity

    ANSWER: d

132. When a clarinet plays a high C followed by a low C, these two notes are perceived differently because they differ in what aspect?
    a. complexity
    b. amplitude
    c. frequency
    d. purity

    ANSWER: c

Chapter 4 - Sensation and Perception

133. What units of measurement refer to the loudness of sounds?
    a. timbre
    b. wavelength
    c. decibels
    d. hertz

    ANSWER: c

134. What units of measurement refer to the pitch of sounds?
    a. hertz
    b. nanometers
    c. decibels
    d. wavelengths

    ANSWER: a

135. What is the range of human hearing?
    a. 5 to 50 Hz
    b. 10 to 100 Hz
    c. 20 to 20 000 Hz
    d. 10 000 to 100 000 Hz

    ANSWER: c

136. What is the structure of the ear that transduces sound vibrations into nerve impulses?
    a. oval window
    b. temporal lobe
    c. cochlea
    d. stirrup

    ANSWER: c

137. Jefferson has had years of exposure to high-amplitude sound through his work as a helicopter mechanic. Lately he has noticed that he is losing his ability to detect high-frequency sounds. What has Jefferson most likely damaged?
    a. his eardrum
    b. the tiny bones of his middle ear
    c. his cochlea
    d. his auditory canal

    ANSWER: c

138. Which structure of the ear serves a similar function as the retina serves in the eye?
    a. pinna
    b. eardrum
    c. cochlea
    d. ossicles

    ANSWER: c

139. What are the direct receptors for hearing?
    a. hair cells
    b. basilar cells
    c. ossicles
    d. cochleas

    ANSWER: a

140. What process allows us to hear pitch, according to place theory?
    a. There is differential movement of specific ossicles.
    b. The entire cochlea vibrates at a speed equivalent to the wavelengths that stimulate the ear.
    c. Vibrations occur at specific locations on the basilar membrane.
    d. Specific hair cells are simultaneously stimulated all along the length of the semicircular canals.

    ANSWER: c

141. Imagine that the basilar membrane in the human ear were longer. What might you expect humans to be able to do, based on place theory?
    a. localize sounds more accurately
    b. hear more sounds of lower frequency, but lose some higher frequency sounds
    c. hear a wider range of sounds
    d. detect sound waves that had a lower amplitude

    ANSWER: c

142. Which theory of hearing views the basilar membrane as being like a drumhead?
    a. place
    b. timpani
    c. opponent process
    d. frequency

    ANSWER: d

Chapter 4 - Sensation and Perception

143. The maximum firing rate for individual neurons is 1,000 neural impulses per second. What does this biological limitation mean for theories of perception?
    a. Trichromatic theory cannot fully explain colour perception.
    b. Opponent process theory cannot fully explain colour perception.
    c. Place theory cannot fully explain pitch perception.
    d. Frequency theory cannot fully explain pitch perception.

    ANSWER: d

144. What is the major flaw in the frequency theory of pitch perception?
    a. It places the transduction process in the semicircular canals and not the cochlea.
    b. Structurally, it is impossible for the basilar membrane to vibrate.
    c. The action of the ossicles interacting with the auditory nerve was misidentified.
    d. Neurons cannot fire fast enough to account for hearing tones higher than 1,000 cycles/second.

    ANSWER: d

145. Which theory, or theories, best explain(s) pitch perception for very low-pitch, very high-pitch, and middle-pitch sounds, respectively?
    a. place theory; both theories; frequency theory
    b. place theory; frequency theory; place theory
    c. frequency theory; place theory; both theories
    d. frequency theory; both theories; place theory

    ANSWER: c

146. What is speech prosody?
    a. ability to use speech for intentional communication
    b. unspoken aspects of speech, including body posture
    c. use of speech in noncommunicative ways
    d. musical aspects of speech, like intonation and rhythm

    ANSWER: d

147. After reading the Featured Study, in which of the following might you enroll your child if you wanted to enhance your child's ability to interpret speech prosody?
    a. team sport rather than an individual sport
    b. linguistics course
    c. visual arts course
    d. keyboard lessons

    ANSWER: d

148. If you are experiencing gustatory perception, what are you doing?
    a. tasting
    b. smelling
    c. touching
    d. balancing

    ANSWER: a

149. What are the four basic tastes generally considered to be?
    a. sweet, sour, spicy, and smooth
    b. salty, sweet, sour, and bitter
    c. bitter, salty, bland, and sour
    d. sour, bitter, bland, and hot

    ANSWER: b

150. Where on the tongue would you find the oldest taste cells?
    a. near the tip of the tongue
    b. near the middle of the taste bud
    c. near the throat
    d. near the outer edge of the taste bud

    ANSWER: b

151. What structure in the gustatory system operates in a similar fashion to rods and cones in the visual system?
    a. the tongue
    b. a taste bud
    c. a hair cell
    d. the salivary gland

    ANSWER: b

152. What evidence do we have that some taste preferences are innate?
    a. There is genetic evidence of predispositions to prefer certain foods.
    b. There are many foods or substances that are rejected by all cultures.
    c. Newborn infants demonstrate a preference for sweet and an aversion to sour tastes.
    d. The brain's response to flavours does not change across the life span, even if diet changes.

    ANSWER: c

153. Compared to nontasters, what is different about people characterized as supertasters?
    a. They have taste buds that respond to multiple types of flavours.
    b. They have three or four additional types of taste buds.
    c. They have about four times as many taste buds per square centimetre.
    d. They have about ten times as many taste buds per square centimetre.

    ANSWER: c

154. What is one key gender difference that has been found with respect to tasting?
    a. Men are more likely than women to be supertasters.
    b. Women tend to react more to sweet tastes while men react more to bitter tastes.
    c. Women are more likely than men to be supertasters.
    d. Men tend to react more to sweet tastes while women react more to bitter tastes.

    ANSWER: c

155. Eloise is an individual who is classified as a supertaster. What is she likely to be especially sensitive to?
    a. salty and sour tastes
    b. sweet and salty tastes
    c. sweet and bitter tastes
    d. sour and bitter tastes

    ANSWER: c

156. Why does food generally taste bland when you have a severe head cold?
    a. Your cold will cause the sweet receptors in your mouth to become inactivated.
    b. Your high temperature will cause your brain to block signals from the taste buds in the mouth.
    c. Your naturally produced antibodies interfere with chemical molecules stimulated by your taste buds.
    d. Flavour is influenced by smell as well as taste, and with a reduced sense of smell, your sense of taste will be diminished.

    ANSWER: d

157. Mike broke his nose in a recent boxing match. The doctors packed his nose and told him he will need to breathe through his mouth for the next 10 to 14 days. What is Mike likely to experience while his nose is packed?
    a. Food will have little taste because much of a food's flavour depends on our sense of smell.
    b. He will have problems with his equilibrium and balance.
    c. Food will taste better because his sense of taste will be temporarily enhanced to compensate for his missing sense of smell.
    d. He will have blurry vision because the packing will put pressure on his optic nerve.

    ANSWER: a

Chapter 4 - Sensation and Perception

158. What is the sense associated with the perception of smell?
    a. olfaction
    b. gustation
    c. audition
    d. kinaesthesia

    ANSWER: a

159. What is the only sensory system that does not project upward to the cerebral cortex through the thalamus?
    a. audition
    b. gustation
    c. vision
    d. olfaction

    ANSWER: d

160. What are the sensory receptors for smell?
    a. smell buds
    b. gustatory bulbs
    c. olfactory cilia
    d. sciatic receptors

    ANSWER: c

161. Our sense of smell shows evidence of sensory adaptation. What happens to the perceived strength of an odour?
    a. It fades to less than half its original strength within about four minutes.
    b. It slowly increases over time, reaching a maximum in about 15 minutes.
    c. It fades to less than half its original strength within a few seconds.
    d. It increases to more than twice its original strength within about four minutes.

    ANSWER: a

162. If someone's behaviour is altered by the scent chemicals released by another member of his species, what is the term used for that scent chemical?
    a. scent hormone
    b. pheromone
    c. odourant
    d. chemolfaction

    ANSWER: b

163. What happens to the perception of pressure if a stimulus is applied continuously to a specific spot on the skin?
    a. It fades in some receptive fields, but increases in others.
    b. It increases over time.
    c. It gradually fades.
    d. It fades only if the pressure is pulsatile.

    ANSWER: c

164. What route is taken by nerve fibres that carry information about pressure from the surface of the skin on the left side of the body?
    a. past the spinal column and into the left temporal cortex
    b. along the spinal meninges and terminating in the left parietal somatosensory cortex
    c. through the spinal column and into the right frontal motor cortex
    d. through the spinal column and into the right parietal somatosensory cortex

    ANSWER: d

165. Which pain pathway transmits information about an injury that has just occurred?
    a. fast
    b. geniculate
    c. slow
    d. medial

    ANSWER: a

166. Which pathway for pain results in the experience of pain being less localized and longer lasting?
    a. endorphin
    b. generic
    c. slow
    d. thalamic

    ANSWER: c

167. What structures do neural transmission in the slow pain pathway depend on?
    a. pulsating neural impulses called pain spindles
    b. opponent process receptors in the area surrounding the injury
    c. thicker, myelinated neurons called A-delta fibres
    d. thin, unmyelinated neurons called C fibres

    ANSWER: d

168. Catelin has had a slow throbbing pain in her ankle since she twisted it while in-line skating last week. Where are these pain signals travelling?
    a. along thin, unmyelinated C fibres
    b. through periacqueductal gray neurons in the midbrain
    c. along ungated endorphin pathways in the hypothalamus
    d. through thick, myelinated A-delta fibres

    ANSWER: a

169. Derek dropped a hammer on his foot and shrieked a split second later at the intense pain from a newly broken toe. How did the almost instantaneous pain signals travel?
    a. along thick, myelinated A-delta fibres
    b. through periacqueductal gray neurons in the midbrain
    c. along thin, unmyelinated C fibres
    d. through gated endorphin pathways in the hypothalamus

    ANSWER: a

170. Which of the following accurately describes the role of culture for pain perception?
    a. Race has a larger impact on pain perception than does culture.
    b. Culture has no impact on pain perception or attitudes toward pain.
    c. Culture affects willingness to tolerate pain, but not the process of pain perception.
    d. Cultural rules dictate the amount of pain experienced, but only above a certain innate threshold.

    ANSWER: c

171. Which theory can account for the fact that people suffering from pain sometimes report pain relief from a sugar pill placebo?
    a. cognitive control
    b. sensory adaptation
    c. perceptual constancy
    d. gate control

    ANSWER: d

172. Which of the following helps to explain an athlete's ability to play with a broken foot and not feel the pain until much later?
    a. overactive thyroid response
    b. hypnotic induction control theory of pain
    c. sympathetic nervous system control mechanisms
    d. gate-control theory of pain

    ANSWER: d

173. What is the point of origin for the pathway that researchers believe mediates the perception of pain?
    a. medial forebrain bundle
    b. medulla
    c. periacqueductal gray
    d. septal nucleus

    ANSWER: c

174. What would happen if you cut fibres in the neural pathway leading away from the periacqueductal gray in the midbrain?
    a. increased perception of pain
    b. enhanced effects of morphine and other opiate drugs
    c. release of endorphins
    d. reduced perception of pain

    ANSWER: a

175. What is the role of glial cells for pain perception?
    a. If spinal glial cells are activated, they can reduce the experience of pain.
    b. If glial cells are damaged or inactive, perception of pain increases.
    c. Glial cells in the spinal cord appear to block transmission of endorphins to the periaqueductal grey.
    d. Spinal glial cells are activated by the immune system and may amplify chronic pain.

    ANSWER: d

176. Which sense is important for perception of the positions of the various parts of the body?
    a. homeostatic
    b. vestibular
    c. kinesthetic
    d. kinetic

    ANSWER: c

Chapter 4 - Sensation and Perception

177. What does your kinesthetic system allow you to perceive?
    a. your sense of forward acceleration
    b. your body movement, when something else is moving you
    c. the relative position of your body parts
    d. the location of your body in space

    ANSWER: c

178. Where would you find receptors for the kinesthetic sense?
    a. semicircular canals
    b. basilar membrane
    c. cochlea
    d. joints and muscles

    ANSWER: d

179. A police officer asks Stanley to close his eyes and touch the tip of his nose, using first his right index finger and then his left index finger. What does Stanley rely on to complete this test of coordination?
    a. sensory accommodation
    b. reticular sense
    c. vestibular sense
    d. kinesthetic sense

    ANSWER: d

180. Where are the receptors for the vestibular sense?
    a. muscles
    b. inner ear
    c. joints
    d. skin

    ANSWER: b

181. Which of the following parts of the ear has a role in maintaining balance?
    a. semicircular canals
    b. basilar membrane
    c. ossicles
    d. cochlea

    ANSWER: a

Chapter 4 - Sensation and Perception

182. Loreen has a bad case of vertigo. She feels like the room is spinning, and she has trouble keeping her balance. Which of the following is most likely to be the location of excess neural activity in Loreen's case?
    a. olfactory bulb
    b. parvocellular system
    c. periacqueductal gray
    d. semicircular canals

    ANSWER: d

183. You have a severe ear infection. Which of the following is a potential side effect?
    a. enhanced sense of smell
    b. loss of balance
    c. blurred vision
    d. loss of ability to taste food

    ANSWER: b

184. Our construction of perceptual hypotheses illustrates which of your text's unifying themes?
    a. Psychology is empirical.
    b. Behaviour is determined by multiple causes.
    c. Psychology evolves in a sociohistorical context.
    d. People's experience of the world is highly subjective.

    ANSWER: d

185. Which of your text's unifying themes is illustrated by the fact that many people are reluctant to try novel foods from other cultures?
    a. People's experience of the world is highly subjective.
    b. Psychology is empirical.
    c. Behaviour is shaped by our cultural heritage.
    d. Psychology evolves in a sociohistorical context.

    ANSWER: c

186. What depth cues must a painter employ in order to create the illusion of three-dimensional reality?
    a. pictorial
    b. convergence
    c. binocular
    d. pointillism

    ANSWER: a

Chapter 4 - Sensation and Perception

187. Which type of artists were more concerned with interpreting a viewer's fleeting perception of reality than with re-creating the photographic "reality" of a scene?
    a. French Impressionists
    b. realists
    c. medievalists
    d. cubists

    ANSWER: a

188. Which mechanism does the impressionist technique of pointillism rely on?
    a. subtractive colour mixing
    b. feature analysis
    c. binocular disparity as a cue for depth
    d. additive colour mixing

    ANSWER: d

189. Which school of painting reduces reality to combinations of geometric forms laid out in a flat space?
    a. cubism
    b. surrealism
    c. Impressionism
    d. pointillism

    ANSWER: a

190. Which organizational principles are evident in the paintings of Cubists?
    a. Gestalt
    b. accommodation
    c. functionalist
    d. neurological

    ANSWER: a

191. Which theorist's influence is reflected in the surrealists' exploration of the world of dreams and fantasy?
    a. Ernst Weber
    b. David Hubel
    c. Sigmund Freud
    d. Gustav Fechner

    ANSWER: c

Chapter 4 - Sensation and Perception

192. What are M. C. Escher's paintings, which often include impossible staircases and other structures, viewed as examples of?
    a. perceptual ambiguity
    b. pointillism
    c. cubism
    d. Gestalt continuity

    ANSWER: a

193. Victor Vasarely's approach is known as Kinetic Art. How does he use optical illusions in his work?
    a. He makes it seem as if there are three-dimensional images popping out of a background of arbitrary features.
    b. He hides images of nudes within advertising images.
    c. He makes it appear as if geometric shapes are moving or changing shape.
    d. He creates a complex image from tiny points of paint or charcoal.

    ANSWER: c

194. Belgian artist René Magritte used images of paintings on easels (within his paintings) that appeared to continue beyond the borders of the canvas. What point was he trying to make?
    a. By making his images look ridiculous, he challenged the viewer to react against surrealist trends in art.
    b. He used visual illusions to make political statements about the futility of democracy.
    c. There is no line between the "real world" and the illusory world, or that everything is an illusion.
    d. He created impossible figures, like Escher did, in order to demonstrate that it was impossible to separate art from the artist.

    ANSWER: c

195. What does the door-in-the-face technique involve?
    a. Making a long series of very small requests, until the target stops agreeing.
    b. Concealing some of the costs associated with a request until after the request has been accepted.
    c. Making a very large request that is likely to be turned down to increase the chances that people will agree to a smaller request later.
    d. Adding incentives to a request that has been turned down until people finally agree to go along with the initial request.

    ANSWER: c

196. Last year Fiona had a yard sale. She marked the prices of items very reasonably, and she refused to reduce them when people tried to negotiate. This year she had another yard sale, but this time she marked the prices of items quite high, and then reduced them by 50 percent or more when people asked to negotiate. Fiona was surprised to find that she made much more money this year. Which of the following may have led people to purchase a lot from Fiona's sale this year?
    a. contrast effects
    b. absolute thresholds
    c. sensory adaptation
    d. subliminal comparitors

    ANSWER: a

197. Roberta and Phil have been arrested for vandalism at their school. Given what we know about contrast effects, what should their defence attorney emphasize in order to get a lighter sentence for Roberta and Phil?
    a. The other students involved in the incident did much more damage than her clients did.
    b. Her clients are both active in a number of extracurricular activities at their school.
    c. This is the first offence.
    d. Both clients are good students who always score at the top of their class.

    ANSWER: a

    Darcy

    Darcy is studying at the kitchen table. Her brothers are watching the hockey game in the living room. When Darcy first sat down to study, the noise of the game was distracting, but now she doesn't really notice it at all. As she reads through her notes, Darcy also doesn't seem to notice all the little spelling errors she made when she was writing them down in class. Instead, she reads the words and sentences clearly and is able to focus on the concepts and examples rather than her mistakes. After a while, Darcy reaches out and grabs her water glass and takes a drink. Just then, her brothers started yelling when their team scores. Startled, Darcy dropped the glass onto her baby toe, which sends pain shooting up her leg. Although Darcy is momentarily distracted, she goes back to her books and is focused on her studies again within about 20 minutes.

198. Which process allows Darcy to not be distracted by the hockey game?
    a. Gestalt continuation
    b. neural fatigue
    c. sensory adaptation
    d. selective attention

    ANSWER: c

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199. Which perceptual process allows Darcy to read her notes without noticing small errors?
    a. linguistic adaptation
    b. bottom-up processing
    c. top-down processing
    d. sensory adaptation

    ANSWER: c

200. Which of the following brain areas is critical when Darcy reaches out for her water glass?
    a. dorsal stream
    b. primary visual cortex
    c. periaqueductal gray
    d. temporal lobe

    ANSWER: a

201. Which of the following increases led to Darcy being startled when Darcy's brothers started yelling?
    a. frequency of the sound
    b. amplitude of the sound
    c. purity of the sound
    d. timbre of the sound

    ANSWER: b

202. Which type of nerve fibres were responsible for the immediate sensation when Darcy felt pain in her baby toe?
    a. C fibres
    b. A-delta fibres
    c. ungated thalamic fibres
    d. periaqueductal fibres

    ANSWER: b

203. Complete the following analogy: The visual cortex is to the auditory cortex as the occipital lobe is to the _____.
    a. frontal lobe
    b. sensory lobe
    c. parietal lobe
    d. temporal lobe

    ANSWER: d

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204. You've been sitting on the couch for a while now; there is music playing in the background, and your cat has fallen asleep with his head on your arm. You are daydreaming about your upcoming vacation, and you don't notice or attend to the sound of the music or the pressure of your cat's very heavy head. What processes result in these two types of loss of feeling?
    a. endorphin-induced suppression of perception
    b. sensory adaptation
    c. sensory sensitization
    d. perceptual dulling

    ANSWER: b

205. Complete the following analogy: Hue is to pitch as brightness is to _____.
    a. purity
    b. loudness
    c. retinal disparity
    d. timbre

    ANSWER: b

206. Use appropriate examples from everyday situations to illustrate the basic concepts from signal-detection theory, and how signal-detection accuracy can vary across situations.

    ANSWER: Good answers to this question should include practical examples of a hit, a miss, a correct rejection, and a false alarm. The discussion should also include the idea that changing the criterion for detection can alter accuracy. Well-developed answers will also include the idea that concurrent environmental events (such as irrelevant stimuli) can affect sensory thresholds and the accuracy of signal detection.

207. From a distal light source to the brain, sequentially trace a visual stimulus through the eye and nervous system.

    ANSWER: Light passes through the cornea, enters the pupil, is focused by the lens, and is projected onto the retina. The retina converts the light rays into nerve impulses, which then travel via the optic nerve to the optic chiasm. At the optic chiasm, the axons from the inside half of each eye cross over and project along two divergent pathways to the opposite cerebral hemisphere.

Chapter 4 - Sensation and Perception

208. Provide an overview of the trichromatic and opponent process theories of colour vision, and resolve the "debate" between the two.

ANSWER: The trichromatic theory proposes that the eye has three types of receptors, each responsive to one of the three primary colours of light: red, blue, and green. The eye then additively mixes different proportions of these three colours to produce the colours we see. The opponent process theory proposes that colour is signalled in pairs by receptors that fire faster to one colour and slower to a second, complementary colour. The three pairs of opponent colours are red-green, blue-yellow, and black-white.

Both theories are needed to adequately explain colour vision. In the earliest stage of information processing, there are three types of cones, each responsive to a different band of wavelengths, consistent with trichromatic theory. In later stages, cells in the retina, the lateral geniculate nucleus, and the visual cortex respond in opposite ways to complementary colours. Thus, colour coding begins with a trichromatic process and then switches to an opponent process.

209. Provide an overview of the place and frequency theories of pitch perception, and resolve the "debate" between the two.

ANSWER: Place theory proposes that specific sound frequencies vibrate specific portions of the basilar membrane, producing different pitches. Frequency theory, on the other hand, proposes that pitch perception corresponds to the frequency at which the entire basilar membrane vibrates.

Currently, it is believed that both theories are needed to fully account for pitch perception. It appears that, for low-frequency sounds (under 1000 Hz), pitch perception depends on frequency coding only; for moderate-frequency sounds (1000 Hz to 5000 Hz), pitch perception depends on a combination of place and frequency coding; for high-frequency sounds (over 5000 Hz), pitch perception depends on place coding only.

210. Compare vision and hearing with regard to the proximal stimulus and information processing for each sense.

ANSWER: The proximal stimulus for vision is light waves oscillating over distance. Light waves have three properties: (1) amplitude, affecting the perception of brightness; (2) wavelength, affecting the perception of colour; and (3) purity, affecting the perception of saturation. Similarly, the proximal stimulus for hearing is sound waves oscillating over time. Sound waves have the same three properties as light waves: (1) amplitude, affecting the perception of loudness; (2) wavelength, affecting the perception of pitch; and (3) purity, affecting the perception of timbre.

Both the eye and the ear convert physical energy (light and sound waves, respectively) into the neural energy that travels to the brain, producing sensory experience. In the eye, this conversion is done by the rods and cones at the retina; in the ear, this conversion is done by the hair cells, located on the basilar membrane in the inner ear. Visual information is routed to the visual cortex in the occipital lobes; auditory information is routed to the auditory cortex in the temporal lobes.

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211. Using appropriate examples, show how perceptual experiences can be subjective.

ANSWER: Good answers to this question should include ideas such as (1) expectations can affect the perception of visual or auditory stimuli; (2) pain perception can be altered by shifts in attentional focus; and (3) extreme comparitors and contrast effects can affect perception. Well-developed answers will bring in concepts from across the chapter, including the Personal Application and the Critical Thinking Application.