

## Chapter 11

1. As you increase the decibel level from 80 dB to 100 dB, the sound intensity a) barely increases b) doubles c) increases by a factor of 10 d) increases by a factor of 100
2. A frequency spectrum shows a tone that is composed of frequencies of 440 Hz, 880 Hz, and 1320 Hz. The 880 Hz and 1320 Hz frequencies are called \_\_\_\_\_ in this example. a) fundamentals b) harmonics c) tertiary frequencies d) formants
3. Frequency can be coded by the firing rate at or near the peak of a 200 Hz sine-wave pressure change (sound). This is called a) frequency coding. b) place theory. c) phase locking. d) a & c above
4. “Monkey call neurons” a) have been found in the auditory cortex of the monkey. b) have been hypothesized but not yet discovered physiologically. c) respond strongly to pure tones. d) a & c above
5. The sound quality that is related to the “nasalness” or “reedy-ness” of a musical note is a) tone height b) pitch c) timbre d) a & b above
6. The role of the middle ear is to a) localize sound in space b) break sound into its component frequencies (Fourier analysis). c) to amplify the vibrations in air and transmit them to the liquid in the inner ear. d) all of the above

## Chapter 12

1. Interaural level (intensity) differences are a cue to auditory localization because the a) person's head creates an acoustic shadow that attenuates high-frequency sounds that reach the far ear. b) person's head creates an acoustic shadow that attenuates low-frequency sounds that reach the far ear. c) medium through which the sound travels can be air, liquid, or solid. d) b and c above
2. Auditory grouping can be accomplished by a) similarity of timbre. b) similarity of pitch. c) location in space. d) all of above
3. Sound that reaches the ears after bouncing off a wall or a floor is called a) direct sound. b) indirect sound. c) harmonics. d) none of the above
4. Warren et al. presented listeners with tones that were either (1) interrupted with silent gaps; or (2) interrupted with silent gaps filled with noise. The results showed that a) both conditions resulted in listeners hearing a continuous tone. b) both conditions resulted in listeners hearing bursts of separate tones. c) the noise condition resulted in listeners hearing a continuous tone. d) the silent gaps (no noise) resulted in hearing a continuous tone.

5. Humans can localize sounds most accurately a) when the sound is directly in front of them. b) when the sound is off on the left side if the person is right-handed. c) when the sound is off on the left side if the person is left-handed. d) b and c above

## Chapter 13

1. The \_\_\_\_\_ is the shortest segment of speech that, if changed, changes the meaning of the word. a) formant b) phoneme c) vowel d) morpheme
2. Spectrograms of sentences show a) that clear pauses occur between each spoken word. b) that the sounds of speech flow one into another with no obvious word boundaries c) no clear pauses or breaks between words. d) b & c above
3. When you say “bat” and “boot,” the /b/ sound is articulated differently. This is an example of a) phoneme contiguity b) phoneme incontinuity. c) coarticulation. d) invariance.
4. Warren showed that when a cough sound replaced the sound of the first /s/ in the word “legislatures,” listeners reported hearing a) just the cough sound where the /s/ was originally. b) just the cough sound, but it masked the whole word. c) just the /s/ sound. d) both the cough and the /s/ sound, but the position of the cough could not be correctly identified.
5. Damage to Broca’s area in the cortex results in difficulty a) in speaking. b) in understanding speech. c) in lip reading. d) in determining phonetic boundaries.

## Chapter 14

1. The nerve fibers from the receptors in the skin go through: a) the medial lemniscal pathway. b) the spinothalamic pathway. c) the geniculostriate pathway. d) a & b above
2. Jan is a right-handed violin player. The cortical representation for the fingers on her left hand is a) equal to the area for the fingers on her right hand. b) equal to the area for the fingers on the left hand of a non-musician. c) larger than the area for the fingers on the left hand of a non-musician. d) smaller than the area for the fingers on the left hand of a non-musician.
3. The duplex theory of texture perception refers to the importance of a) temporal cues and spatial cues. b) temporal cues and auditory cues. c) temporal cues and parietal cues. d) all of the above
4. Research by Derbyshire et al. (2003) on hypnosis and pain perception showed that a) hypnosis does not affect pain perception. b) hypnosis can affect pain perception, but not the brain activity associated with pain. c) hypnosis can affect pain perception and the brain activity associated with pain. d) activation of nociceptors is necessary for pain perception.

5. Endorphins a) are morphine-like substances found in the body. b) are receptors that are stimulated by extreme temperature on the skin. c) are the active agent in placebos. c) have no analgesic effects.

## Chapter 15

1. Dogs are more sensitive to smells than humans because:  
a) humans have more olfactory receptors than dogs. b) dogs have many more olfactory receptors than humans. c) each individual olfactory receptor is more sensitive in dogs than in humans. d) b & c above
2. The \_\_\_\_\_ is the structure that contains the receptors for olfaction. a) substantia gelatinosa b) olfactory bulb c) olfactory mucosa d) chorda tympani
3. There are \_\_\_\_\_ different types of olfactory receptors in humans. a) 4 b) 20 c) approximately 350 d) approximately 10,000
4. Which of the following compounds had the same flavor whether or not the person's nose was clamped to prevent olfaction (smell)? a) MSG b) sodium oleate c) ferrous sodium d) all of these are affected by clamping the nostrils
5. Mueller et al. created a strain of mice that lacked the receptor that normally responds to a bitter substance called Cyx. The mice without this receptor: a) avoided all bitter substances. b) avoided Cyx, but would eat other bitter foods. c) did not avoid Cyx. d) avoided high concentrations of PTC.

## Answers

Chapter 11: 1-c, 2-b, 3-d, 4-a, 5-c, 6-c

Chapter 12: 1-a, 2-d, 3-b, 4-c, 5-a

Chapter 13: 1-b, 2-d, 3-c, 4-d, 5-a

Chapter 14: 1-d, 2-c, 3-a, 4-c, 5-a

Chapter 15: 1-b, 2-c, 3-c, 4-a, 5-c