

## LABORATORY EXERCISE 33 THE EAR AND HEARING

### Figure Labels

#### FIG. 33.1

- |                        |                                |
|------------------------|--------------------------------|
| 1. Auricle             | 7. Vestibulocochlear nerve     |
| 2. Malleus             | 8. Oval window                 |
| 3. Incus               | 9. Tympanic membrane (eardrum) |
| 4. Semicircular canals | 10. Auditory (Eustachian) tube |
| 5. Stapes              | 11. External auditory meatus   |
| 6. Cochlea             |                                |

#### FIG. 33.2

- |   |   |   |
|---|---|---|
| 4 | 2 | 3 |
| 7 | 5 | 6 |
| 1 | 8 | 9 |

#### FIG. 33.3a and b

- |                        |   |
|------------------------|---|
| 1. Scala vestibuli     | 5. Organ of Corti (spiral organ)          |
| 2. Vestibular membrane | 6. Tectorial membrane                     |
| 3. Cochlear duct       | 7. Hair cell (receptor cell)              |
| 4. Scala tympani       | 8. Sensory nerve fibers of cochlear nerve |



### Critical Thinking Application Answer

The largest ear structure is the auricle which is able to trap and funnel a minute sound wave into the middle and inner ear structures. This will allow a concentration of the vibrations making the sound detection more likely to occur.

### Laboratory Report Answers

#### PART A

- |      |      |       |       |
|------|------|-------|-------|
| 1. i | 5. k | 9. n  | 13. f |
| 2. l | 6. h | 10. j | 14. a |
| 3. d | 7. c | 11. o | 15. g |
| 4. m | 8. b | 12. e |       |

#### PART B (figure 33.7)

- |                                |                     |
|--------------------------------|---------------------|
| 1. Cochlear duct               | 4. Basilar membrane |
| 2. Tectorial membrane          | 5. Scala tympani    |
| 3. Hair cells (receptor cells) |                     |

#### PART C

- |                           |                           |
|---------------------------|---------------------------|
| 1. (experimental results) | 3. (experimental results) |
| 2. (experimental results) | 4. Answers will vary.     |

## LABORATORY EXERCISE 34 SENSE OF EQUILIBRIUM

### Laboratory Report Answers

#### **PART A**

- |  |                      |
|--|----------------------|
| 1. utricle                               | 6. ampulla           |
| 2. temporal                              | 7. crista ampullaris |
| 3. macula                                | 8. cupula            |
| 4. calcium carbonate                     | 9. inertia           |
| 5. vestibulocochlear (vestibular branch) | 10. cerebellum       |

#### **PART B**

- |   |  |
|---|--|
| 1. a. The eyes, inner ears, and proprioceptors provide information needed to maintain equilibrium when the eyes are open. | c. With the eyes closed, such a person would receive very little sensory information needed to maintain equilibrium. |
| b. The inner ears and proprioceptors provide such information when the eyes are closed.                                   | 3. a. (experimental results)   |
| 2. a. (experimental results)  | b. Answers will vary.  |
| b. Probably yes; this demonstrates the importance of visual information in maintaining equilibrium.                       |  |



### Critical Thinking Application Answer

Vision, touch, and proprioception would all supplement equilibrium.