

Sensation & Perception Review Questions

- At the airport, Susan's suitcase weighed 25.1 kg, just over the airline's limit. She moved an item to her carry-on bag, which now felt heavier. The suitcase was now 24.9 kg but when she lifted it, she couldn't feel a change. Which of the following best explains this?
 - absolute threshold
 - transduction
 - accommodation
 - Weber's Law
 - sensory adaptation
- Which of the following is NOT a Gestalt Law?
 - common fate
 - simplicity
 - closure
 - convergence
 - similarity
- A homunculus is the distorted representation of a person created by making body part sizes proportional to their corresponding areas of the:
 - retina
 - somatosensory cortex
 - glomeruli
 - cochlea
 - occipital lobes
- After staring at a blue circle, Bill looks at a white screen and sees an afterimage of a yellow circle. Which of the following best explains this?
 - lateral inhibition
 - optic chiasm
 - perceptual constancy
 - Young-Helmholtz trichromatic theory
 - opponent process theory
- After losing an eye in a BB gun accident, Ralph can no longer enjoy 3D movies, which rely on:
 - linear perspective
 - motion parallax
 - binocular disparity
 - interposition
 - relative size
- A dog's superior sense of smell is partly the result of it having a much greater quantity of:
 - nociceptors
 - olfactory bulbs
 - papillae
 - microvilli
 - olfactory receptors
- Due to its concentration of cones, this area of the retina provides the sharpest vision.
 - fovea
 - cornea
 - receptive field
 - iris
 - blindspot
- Which of the following is NOT detected by gustatory cells?
 - bitter
 - spicy
 - umami
 - sweet
 - sour
- While a participant in a visual absolute threshold measurement, Rita becomes aware of tiny specks and spots in her vision, which may interfere with her ability to detect a stimulus. These are examples of:
 - response criteria
 - kinesthesia
 - texture gradient
 - noise
 - synesthesia
- This fluid-filled structure contains cells which fire in response to movement caused by sound waves.
 - stereocilia
 - ossicles
 - basilar membrane
 - auditory canal
 - vestibular system

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1. D – Weber’s Law

Weber’s Law is that the just-noticeable-difference is a proportion of change, not a fixed amount. So the 0.2kg change in Susan’s carry-on can be detected (large proportion of change), but for her suitcase the same weight change is a much smaller proportion and can’t be detected.

2. D - convergence

Convergence refers to the angle of the eyes when focusing on an object and plays a role in depth perception.

3. B – somatosensory cortex

The somatosensory cortices in the parietal lobes contain a “map” of the body in which more sensitive areas take up more space, meaning areas representing the hands and face are larger, while those for the limbs and torso are smaller.

4. E – opponent process theory

Opponent process theory for vision refers to inhibitory pairings (red/green, blue/yellow, black/white). Fatiguing one half of a pair causes the other to appear stronger. This results in an illusion of a complementary color, known as a color afterimage.

5. C – binocular disparity

Binocular disparity refers to the slightly different view each eye has of the world. These are combined in the brain to enhance depth perception. 3D movies present different versions of the film to each eye (via light filtering glasses). The brain combines these into a single image which appears to have depth. This can also be referred to as “retinal disparity”

6. E – olfactory receptors

Olfactory receptors on olfactory receptor neurons (ORN) detect odorant molecules in the air. Depending on the breed, dogs may have about 40 times as many of these receptors as humans, giving them a vastly superior olfactory sense.

7. A – fovea

The fovea is a bowl-shaped section near the center of the retina which is composed entirely of cones and allows for the greatest visual acuity.

8. B – spicy

Spiciness is NOT one of the 5 basic tastes detected by gustatory cells and instead results from activation of thermoreceptors in the mouth.

9. D – noise

In signal detection theory anything that interferes with detecting a signal can be referred to as “noise”. Along with response criteria, this is one of the challenges of measuring absolute threshold.

10. C – basilar membrane

The basilar membrane is a coiled structure in the cochlea which is lined with hair cells (stereocilia). Sound waves move the fluid, which moves the hair cells, triggering neurons to fire. The vestibular system also contains fluid-filled chambers with hair cells, but these relate to head position and balance.