Teacher Answer Key

Case Study

1. The reading says the brain processes visual information in the visual cortex, where it is interpreted and assigned meaning. The eye and the optic nerve only deliver the signal; the meaning is added afterward, inside the brain. That added step is the active organizing and interpreting Kant describes, and it is exactly what a passive receiver would not do.

2. The reading says the somatosensory cortex contains a map of the body, with different areas of the brain representing different parts of the body. The skin does not report where it is, it only fires. Knowing that a touch is on the fingertip rather than the shoulder comes from where the signal lands on that map, so the location a student feels is supplied by the brain. That is the mind organizing sensory data rather than copying it, which is Kant's claim.

Multiple Choice

1. B
2. A
3. D

Matching

1-B, 2-D, 3-A, 4-C

Fill-in-the-Blank

1) smell, 2) palms, 3) cones

Short Answer (Sample Responses)

Q1: The olfactory receptors are located in the nasal cavity, where they are exposed to airborne molecules. When those molecules bind to the olfactory receptors, they trigger electrical signals that are transmitted to the brain. The brain processes olfactory information in the olfactory cortex, which is located in the temporal lobe. Because smell is closely linked to memory and emotion, an odor can also evoke a powerful memory or emotional response.

Q2: Visual perception is influenced by the properties of the visual stimulus, our past experiences, and our expectations. Two people can look at the same scene and interpret it differently because each of them brings different past experiences and different expectations to it, so the same light reaching two pairs of eyes does not produce the same interpretation.

Q3: The outer ear collects sound waves and funnels them into the ear canal. In the middle ear, three small bones (the malleus, incus, and stapes) transmit the vibrations inward. In the inner ear, hair cells inside the cochlea convert those vibrations into electrical signals, which travel to the brain along the auditory nerve and are interpreted in the auditory cortex.