

Questions

1. Electrical stimulation of V1, V2, superior colliculus, LIP, and FEF produces saccadic eye movements towards the receptive / movement field of the stimulated neurons. Which brain region stimulation still evokes saccadic eye movements if the superior colliculus is lesioned?
 - a. V1
 - b. V2
 - c. LIP
 - d. FEF**

Explanation: Stimulation of the neurons in the frontal eye field (FEF) evokes saccadic eye movements if the superior colliculus is lesioned because FEF has direct connections to both SC and the brainstem.

2. What visual phenomenon is characterized by the brain's inability to consciously perceive an object despite it being in the visual field?
 - a. Tunnel vision
 - b. Inattention blindness**
 - c. Hyperacuity
 - d. Binocular rivalry

Explanation: Inattention blindness or perceptual blindness occurs when an individual fails to perceive an unexpected stimulus in plain sight, purely as a result of a lack of attention rather than any vision defects or deficits

3. What is the main difference between simple cells and complex cells in the primary visual cortex (V1)?
 - a. Simple cells primarily respond to color information, whereas complex cells primarily respond to luminance variations.
 - b. Complex cells do not exhibit the same spatial segregation of ON and OFF regions as simple cells do.**
 - c. Simple cells respond to specific features such as edges and bars within their receptive fields. In contrast, complex cells respond to visual stimuli regardless of their exact location within the receptive field.**
 - d. Simple cells respond to simple visual features such as edges and bars. In contrast, complex cells are additionally able to detect movement while the simple cells cannot.

Explanation: Simple cells primarily respond to specific features such as edges and bars within their receptive fields. They exhibit spatially organized responses with distinct ON and OFF regions. In contrast, complex cells integrate inputs from multiple simple cells and respond to more complex patterns of visual stimuli, such as oriented lines or bars, regardless of their exact location within the receptive field. Complex cells do not exhibit the same spatial segregation of ON and OFF regions as simple cells do.

4. Cortical magnification factor increases with eccentricity.
- a. True
 - b. False**

Explanation: Cortical magnification factor describes how much cortical surface area is devoted for a unit of a visual field area. Cortical magnification factor decreases as the eccentricity increases as less resources are used for processing of the visual information from the periphery.

5. Extrastriate cortex includes:
- a. V1
 - b. V2
 - c. V3**
 - d. V4**
 - e. MT/V5**
 - f. IT
 - g. LIP

Explanation: The extrastriate cortex is the region of the occipital cortex of the mammalian brain located next to the primary visual cortex. Primary visual cortex (V1) is also named striate cortex because of its striped appearance in the microscope. The extrastriate cortex encompasses V3, V4, and MT/V5, while V1 corresponds to the striate cortex, and V2 to the prestriate cortex.