

1. State which sensory neural structure is involved in receiving light stimuli. [2 point].
2. State which sensory neural structure is involve in receiving sound stimuli. [2 point].
3. Describe the differences between the neural and computational processing of visual and auditory stimuli at the receptor level and at the level of the primary sensory cortex. In your answer, you could consider the differences of the type of physical energy processed in the two modalities, the organisation and structure of the relevant neural receptor and cortical areas, the manner in which these relevant neural receptors and cortical areas respond to regarding these energy modes, the resulting properties, limitations, capabilities of the respective cognitive representations. [30 points].
4. Discuss how and where in the brain the above visual and auditory cognitive representations might be combined. In your answer, use the example of the perceptual processing of a movie to concretely describe how the different streams of audiovisual information might be integrated in the viewer and how this is experienced. [16 points].
5. Event-related potentials (ERP) and functional magnetic resonance imaging (fMRI) are methodologies commonly used in cognitive neuroscience research.
 - (1). Briefly explain how each of them measures neural activity. (10 points)
 - (2). Compare their advantages and disadvantages. (8 points)
6. Broca's area and Wernicke's area are well-known brain regions involved in language processing in humans.
 - (1). Briefly explain their roles in human language processing. (8 points)
 - (2). Describe what would happen if a patient has a lesion in each area. (6 points)
7. Working memory and inhibitory control are two core executive functions.
 - (1). Briefly explain both functions (8 points)
 - (2). Give one example for each function (10 points).

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