

CSE485: Introduction to Cognitive Science

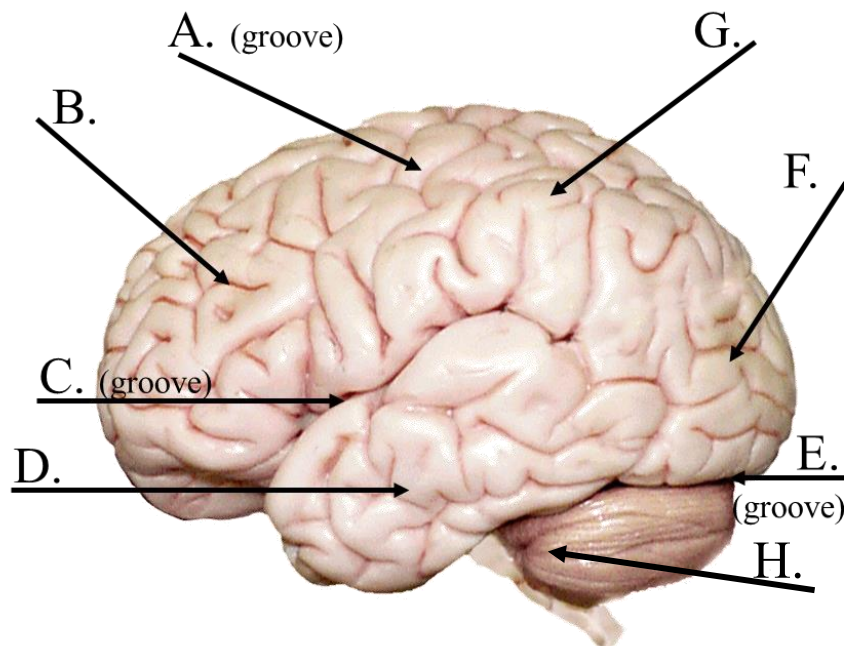
Assignment 2 (DUE: 02-09-2020 Wed midnight) on course moodle page.

NOTE: Please submit a pdf named as "YourRollNo_CogSci_assign1.pdf" on the moodle. Please do not collaborate. If any copying is detected, zero marks will be awarded.

- 1) **Phineas Gage:** Phineas Gage was a railroad worker in the 19th century living in Cavendish, Vermont, USA. One of his jobs was to set off explosive charges in large rock to break them into smaller pieces. On one of these instances, the detonation occurred prior to his expectations, resulting in a 42-inch long, 1.2-inch wide, metal rod to be blown right up through his skull and out the top. The rod entered his skull below his left cheek bone and exited after passing through the anterior frontal lobe of his brain.

Please write (up to half-A4 page-hand-written) about what brain functions were unaltered and what were altered due to the accident. In your own words, what have you understand about injury to the neocortex and its possible consequences based on this case-report. (5 Marks)

- 2) Label the brain features or lobes [shown as A-H] in the following figure: (8 Marks)



- 3) Answer the following questions: (12 Marks)

- Convolutions in the cortex are called _____; the spaces (or ridges) between these are called _____.
- The brain is divided into _____ (number) lobes. This is based on _____ (functional significance or the type of skull bone above them).
- Which lobe is primarily responsible for somatosensation (bodily sensory processing) and reaching?
- Which lobe contains the primary visual cortex?
- The primary cortex for which sense is found in the temporal lobe?

- f. Damage to which lobe can produce disruptions to social, emotional behaviour and personality?
- g. The fluid found in the brain's cavities is called _____; this principally protects the brain from _____.
- h. Gray matter and white matter refer to _____ and _____, respectively.
- i. The regions of the cortex responsible for the maintenance of voluntary movement such as the primary motor cortex, the premotor area and the supplementary motor area exist in _____ lobe of the brain.
- j. What is corpus callosum (CC)?
- k. In which sections of the brain (Coronal, Sagittal or Horizontal) is CC visible?
- l. How do you justify the statement: "The resting brain never rests"?