

Mathematical Foundations of Neuroscience - Sample Questions - Lecture 1 - Basic facts about the brain and its analysis

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Questions marked with * are not obligatory.

1. Describe the EEG method. Name the most important brainwaves and their approximate frequencies.
2. Explain how the computer tomography works.
3. Formulate and prove the projection slice theorem, explain its relevance to tomography.
4. What are the difficulties in running PET scanner?
5. Briefly explain how the MRI scanner works. What are the advantages of MRI scans compared to tomography?
6. Name the most important parts of the brain. You can use the diagram below.

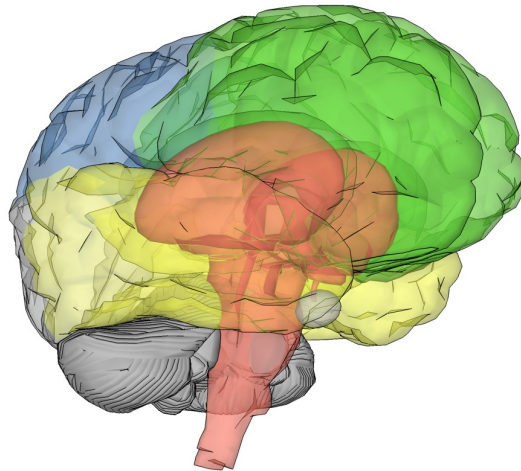


Figure 1: The brain diagram.

7. * Explain the main ideas of the backprojection algorithm.