BMT-54006  Introduction to Neuroinformatics

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Write on each one of your answer sheets:
✓ course name, date, number of the sheet / total number of sheets
✓ surname, first name, student ID

No calculators are allowed.

You may answer in English or Finnish.

1.

Describe briefly (with a couple of sentences) the following concepts:
   a) neuroinformatics (1p)
   b) chemical synapse (1p)
   c) metadata (1p)
   d) ontology (1p)
   e) leaky integrate-and-fire (LIF) neuron model (1p)
   f) neuromorphic engineering (1p)

2.

   a) Describe three large, global neuroinformatics initiatives. What is their vision and what aspects of neuroinformatics do they emphasize? (3p)

   b) Give a definition to computational and theoretical neuroscience. (1p) How does computational neuroscience aid the neuroscience research? (1p) What different kinds of methodologies does the field of computational neuroscience utilize? (1p)

3.

List the components of a typical brain-machine interface. (1p) What are the input signals and what the output signals of the interface? (2p) How are the input signals translated into the outputs? (3p)

4.

Discuss what you learned at the course and how you expect to use this knowledge in the future. What was your previous background and how easy it was to digest the course material? (6p)