Neuroengineering 2023-2024

July 4th 2024

Part II - Even

How to submit your answers.

The answers can be typed in the provided text file.
Write the answers in the same sequence as the questions (A1, A2, …) and write the same headers as the test on a separate line just above your answer, e.g.:

> Problem
> A1
> *<your answer to question A1 goes here>*
> A2
> *<your answer to question A2 goes here>*
> …

Textual answers must be typed in the editor. When graphical elements are required in the answer, the latter can be written on paper.

Keep your answers tidy. Messy, hard-to-read answers may penalize your mark.

The maximum total score for part II is **8**.

Given the directed functional network reported in the following figure:

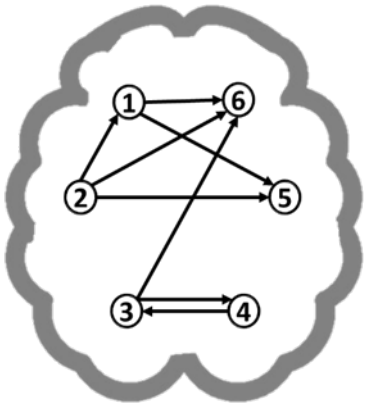

Fig. 1-A

Questions:

Q1: Compute the network density and the In-degree and Out-degree of each node *(2 points)*

Q2: Compute the **Divisibility D** of the network, considering the two hemispheres as classes, like in **Fig. 1-B**: C=[1,1,1,2,2,2] *(2 points)*

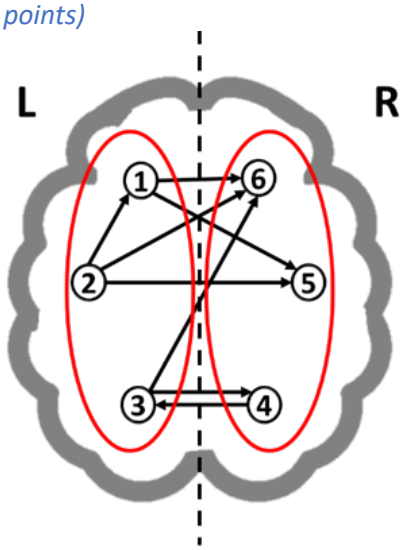

Fig. 1-B

Q3: Compute the **Divisibility D** of the network, considering the frontal lobe and the parietal lobe as classes, like in **Fig. 1-C:** C=[1,1,2,2,1,1] *(2 points)*

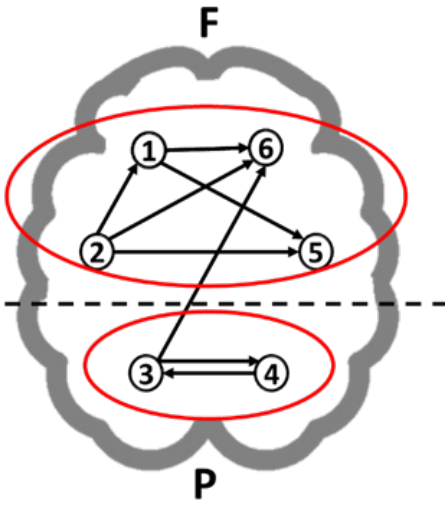

Fig. 1-C

Q4 – Given the results obtained at Q2 and Q3, indicate which of the two divisions in classes (left-right or fronto-parietal) corresponds to a more segregated network. **Justify your answer.**
(2 points)

(End of the test)