**Exercise 3 – questions**

1. Describe the basis of perfusion and diffusion MRI and what they are commonly used for (5 points).
2. What is structural connectivity? How is it typically estimated? Does it change over time? (5 points)
3. In network/graph theory, what is a hub? Which are common types of hubs? Describe three metrics that can be calculated for a node which might be used to identify potential hubs. For each of these, describe what kinds of graphs you have to create to assess these metrics? (10 points)
4. Describe the major advantages and disadvantages of PET, SPECT, fMRI, fNIRS, and FUS imaging. (10 points)
5. Describe some common approaches to investigating and quantifying functional connectivity in fMRI data. (6 points)
6. What does the term “resting-state network” mean? Are RSNs independent of the approach used to identify them? (6 points)
7. Name 4 commonly identified RSNs that are distributed over different, non-contiguous, parts of the brain. (4 points)
8. What are advantages of using atlases/parcellations? (4 points)