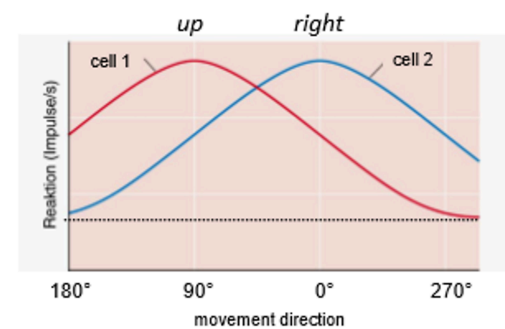# Exam protocol 2025 | 12 Questions | 100 Points total | 2h

1. Create a phylogenetic tree based on the following species 8P:
   Common Marmoset, Human, Rhesus Monkey, House Mouse, Common Rat,
   California Sea Hare, European Honeybee, Zebrafinch

2. Explain convergent evolution on the example of cognition in Birds and Mammals based on evidence from cognition, evolutionary history, neuroanatomy (three items) (5P)

3. Characteristics of working memory and how it differs from other types of short-term memory and long-term memory

4. Name and explain 4 reasons why brains can't get larger (8P)

5. Explain the differences in structure of (Pre-)Frontal Cortex between primates and rodents. What is different and what is homologous? (9P)

6. Executive Control
   a) Attention: Make a table comparing exogenous and endogenous attention. 5 items.
   b) Spatial Working Memory (where?). Explain the most commonly used paradigm used to investigate and how a single neuron in the dorsolateral PFC would react. (e.g. draw a PSTH)
   c) Population vector (6 Pt!!!)
      He explained some stuff about the population vector and then asked to <u>draw</u> how the resulting population vector would be calculated for the movement direction "upwards", using the tuning curves for two cells (seen on the right).

7. Müller Lyer illusion → Explain the modularity of the mind on the mind based on this illusion (8P)

8. Consciousness: Explain how a consciousness neuron would respond in comparison to a neuron encoding stimulus intensity (by drawing and also referring to behaviour).

9. Icon, Index and symbols (6 Pt)
   Same sentences as usual.
   Tears are a ……….. for sorrow and grief.

10. Intentionality (4 Pt) What order of intentionality are these sentences?
    "I want a drink"
    "You know that I believe that you think that I desire your girlfriend."

Seminar Questions (was divided into 2 questions | 20/100 Points)

- Do Chimpanzees know what others know?: Fill in gaps
  Using a competitive (more naturalistic) paradigm with conspecifics (food competition) showed perspective taking behavior better than a cooperative (more controlled) design with humans (cooperation)

- Something like: Patient SM suffers under damaged amygdala. How does she behave when she looks at other peoples' faces compared to healthy people? (1Pt)
  → SM does not look at eyes due to bilateral Amygdala lesion → Amygdala guides attention to emotional cues
  Two images with different gaze patterns and you should tell which one is from SM and which one is from a healthy person. (1Pt)

- Study on Caching scrub jays:
  What behavior did the scrub jays show when they were observed during caching?
  → They re-cached the food
  What experience was necessary for this?
  → They had to previously be pilferers themselves ("It takes a thief to be a thief")

- What information can be inferred by airborne sounds of plants?
- Ant study:
  Mark and annotate on a line where the ants would stop.
  Four different lengths of legs given: very short stumps, short stumps, normal, stilts
  Food source —-------> Home Nest —--------> (looked like this)

- How is the counting system of the Piraha tribe called?

- Children have good phonetic contrasts with 6 - 12 months. Afterwards this disappears. How can this effect be reduced?

- Ventro-medial PFC lesions and social dilemma
  Describe how a patient would behave compared to healthy people (eg. less endorsement, same endorsement, more endorsement) in the following situations.
  Images of impersonal situation (pulling a lever to redirect the train to save five people and sacrifice one person) (1Pt)

- Study on trash-can cultural transmission: a map showing the distribution was given
  What inhibited the spread of behavior? Forested areas
  What did this lead to? Subcultures

- Fill in the gaps: study on attentional lapses: attentional lapses could be reduced via training